

# M

# MODERN

February 2022 | Vol 18 No 2



# MINING

**CROWN**  
PUBLICATIONS

For people who are serious about mining



## IN THIS ISSUE...

- Helium constraints - Renergen in a sweet spot
- Underground support solutions for hard rock and coal mines
- Akobo Minerals targets gold production before year-end
- Motors: The unsung heroes behind minerals processing

# babcock™



# Improve safety underground

Safe, accurate spatial mapping of rock bolt location

Optimise rock bolt distribution to mitigate risk

Support geotechnical & management decision-making

Apply to all underground & tunnelling operations

# CONTENTS



## ARTICLES

### COVER

12 Commodity boom drives demand for Babcock equipment

### ENERGY

16 Helium constraints - Renergen in a sweet spot

### GOLD

20 Akobo Minerals targets gold production before year-end

### COMMODITIES OUTLOOK

24 Metals to remain supported at elevated price levels in 2022

### MOTORS & DRIVES

26 Motors: The unsung heroes behind minerals processing

### ROOF SUPPORT

30 Underground support solutions for hard rock and coal mines

32 Sandvik's Harare powerhouse keeps mining moving

## REGULARS

### MINING NEWS

4 Ukwazi acquires Sidus Consulting, solidifying transaction advisory capability

4 Sibanye-Stillwater to assume full ownership of Kroondal

4 BFG Africa appoints a new MD as it expands into broader SA economy

5 Steenkampskraal eyes listing on the stock exchange

5 Séguéla gold eyes first gold pour in mid-2023

6 Barrick's focus on quality orebodies delivers results

6 Namibia Critical Metals identifies drill targets at Erongo project

7 SEIFSA calls for Government support for sustainable economic recovery

8 ALROSA offers the market additional supplies of rough diamonds

8 Mako commences drilling at Korhogo project

9 Tharisa signs MoU with Total Eren and Chariot for solar photovoltaic project

10 IMPLATS receives award for sustainability

10 Phalaborwa Rare Earths test work demonstrates robust fundamentals

10 Shanta Gold unlocks exploration success

11 Sukari underground transitions to owner mining

### EXPERT VIEW

34 Why 2022 could be a watershed year for logistics in Africa

### SUPPLY CHAIN NEWS

37 Kalahari Process unlocks full potential of iron ore tailings

37 Testing at Multotec improves manganese recoveries

38 Used oil pioneer BME grows its green partnerships

38 Metso Outotec introduces MDM900 mill discharge slurry pumps

39 Rosond, Boart Longyear partner to uplift local businesses in the N Cape

39 HPE Africa expands with HX225SL tracked machines

40 BMG develops high efficiency Synergy electric motors



## ON THE COVER

The commodity sector's favourable streak is carrying through into 2022 and has equipment supplier, Babcock, which has an order-book surpassing expectation, extremely upbeat.

See story on page 12.

# Fingers crossed the red-tape team gets off to a rapid start

**F**or the longest time, the mining industry has been bemoaning the red-tape that hinders investment in the country, citing it as a key reason for South Africa's poor foreign direct investment. It has repeatedly implored government to create an environment conducive to ease of doing business.

In his latest State of the Nation Address (SoNA), it seems that President Cyril Ramaphosa finally gave it an ear with the appointment of Siphon Nkosi to lead a team tasked with reducing the red tape across government departments.

Even the President conceded that there are just "too many regulations that are unduly complicated, costly and difficult to comply with", which prevents companies from growing and creating jobs.

Nkosi, former CEO of Exxaro Resources and a former president of the then-Chamber of Mines, is currently the chairperson of the Small Business Institute.

The 'red tape team' will identify priority reforms for the year ahead, including mechanisms to ensure government departments pay suppliers within the required 30 days.

The Minerals Council South Africa has been most vocal in applauding the establishment of the red tape team and Nkosi's appointment.

The move will surely fast-track the more than 4 000 mining and prospecting rights awaiting approval within the Department of Mineral Resources and Energy and ensure that the more than R30-billion in approved capital projects can finally get off the ground and into development stage.

Minerals Council CEO Roger Baxter was quick to call for the "need to move from theory to practice".

"We have run out of time to keep doing the same things that simply have not worked and which have in fact pushed us into this economic crisis," he stated.

Baxter implored government to "do things completely differently to get growth back to 5% per annum".

Mining has been aiming to grow beyond its current 8% contribution to gross domestic product (GDP) to between 10% and 12% in the next few years.

But aside from the red-tape and power constraints, the mining sector is also hampered by bottle-necks caused by logistics challenges.

In his SoNA, President Ramaphosa also

flagged the logistical issues that have been hindering bulk commodity producers, especially miners of iron ore, coal, chrome and manganese, who face severe disruptions to their export logistics.

The logistical challenges are largely due to Transnet's inability to provide a reliable rail and port service and the rampant crime at Transnet's railways.

"Over several years, the functioning of our ports has declined relative to ports in other parts of the world and on the African continent. This constrains economic activity," the president said.

The Minerals Council estimates that miners of bulk commodities experienced an opportunity cost of at least R35-billion in lost exports in 2021.

Owing to problems at Richards Bay, chrome exporters have been forced to truck their products to Mozambique's Maputo harbour. Ferrochrome and coal exports are also increasingly being sent via Maputo because of the inefficiencies of Transnet rail and ports.

Transnet has promised to improve operational efficiencies at the ports and is procuring additional equipment and implementing new systems to reduce congestion, as well as employing additional security personnel to address cable theft and vandalism on the freight rail network.

In a bid to alleviate the bottlenecks, the rail entity will also provide third-party access to its freight rail network from April 2022 and make slots available on the container corridor between Durban and City Deep in Gauteng.

If we succeed in tackling just some of our challenges, the mining sector will reach its targeted GDP contribution of over 10% sooner rather than later and more mining and related industries will be telling good-news stories, such as our cover story on Babcock Equipment.

On the back of strong commodities demand, the equipment producer is in the driving seat, with an order-book surpassing expectation.

Also perched on the sweet spot is clean energy producer, Renegen, which is set to be on the receiving end of "unimaginably" high helium prices when it begins producing helium on a commercial scale, in April.

Scandinavia-based gold exploration company, Akobo Minerals, also has the wind at its back as it progresses its Segele and Joru assets in Ethiopia, aiming to be a gold producer by as early as the end of this year. ■



Nellie Moodley

**Editor:** Nellie Moodley  
e-mail: mining@crowm.co.za  
**Features Writer:** Mark Botha  
e-mail: markb@crowm.co.za  
**Advertising Manager:** Bennie Venter  
e-mail: benniev@crowm.co.za  
**Design & Layout:** Darryl James

**Publisher:** Karen Grant  
**Deputy Publisher:** Wilhelm du Plessis  
**Circulation:** Brenda Grossmann  
**Published monthly by:** Crown Publications (Pty) Ltd  
P O Box 140, Bedfordview, 2008  
Tel: (+27 11) 622-4770 Fax: (+27 11) 615-6108  
e-mail: mining@crowm.co.za www.modernminingmagazine.co.za

**Printed by:** Tandym Print

The views expressed in this publication are not necessarily those of the editor or the publisher.



Average circulation  
October-December 2021: 11 306

# MORE THAN JUST **VARIABLE SPEED DRIVES...**

ensuring the most efficient use of energy.



A WEG variable speed drive and motor combination will meet and exceed the highest efficiency standards as defined by the European standards of efficiency for VSDs and motors combined, EN50598 (IEC61800-9). We offer energy savings with reliable VSDs.

With over 90 000 VSDs and soft starters installed in Southern Africa we are one of the largest motor and VSD stockists and suppliers in Africa. Zest WEG's dedicated service centres countrywide ensure we support our clients 24/7, including on site repairs and commissioning.



# ZEST

WEG Group



## Ukwazi acquires Sidus Consulting, solidifying transaction advisory capability

Mining services company Ukwazi has acquired financial modelling consultancy, Sidus Consulting. The transaction will help grow Ukwazi's existing solutions portfolio, expanding the business' integrated mining offering for clients across Africa,



Determining future production figures, profitability and expenditures through effective cost modelling and estimates will be essential to inspiring international and local investor confidence.

the Middle East and Europe. Sidus' chief executive, Kerron Johnstone, will head up mining valuations as part of the new Ukwazi Transaction Advisory (UTA) division, which will provide industry-leading public reporting, mine financial modelling, project valuation reports, independent technical reports (ITRs) and competent person reports (CPRs), amongst other key services.

"As we move into 2022, we see a revision in mining capital allocation strategies, driven largely by post-pandemic economic recovery trends and a rise in demand and pricing," says Ukwazi's MD, Jaco Lotheringen. "While this certainly presents an opportunity to make bolder decisions – particularly when it comes to viable and responsible mining investments – accurate financial modelling and risk assessments will be essential to the sustainability of these investments."

According to Lotheringen, Sidus' vast experience in capital budgeting and investments, closure liability assessments, due diligence and mining IPOs, perfectly complements Ukwazi's range of multi-disciplinary advisory services as well as the company's expert capabilities in mining, engineering and environmental solutions. "Leveraging these core competencies will

ensure that clients achieve a cost profile that is efficient, sustainable and safe to operate."

Johnstone, who will play a major role in UTA, has more than 20 years' experience analysing the viability, feasibility and life-cycle costing of large mining, water engineering and industrial capital projects. His main area of specialisation is techno economic assessments, a field he became interested in during his time working in merchant and investment banking and engineering consulting.

Explains Johnstone, "The mining sector has reached a pivotal point – rapidly evolving technology, the requirement to sustain the licence to operate and increasing environmental, social and governance (ESG) pressures, including the journey towards decarbonisation. Determining future production figures, profitability and expenditures through effective cost modelling and estimates, will greatly assist the industry in successfully navigating these perceived risks, turning them into workable opportunities. Robust modelling and analytics, as well as Code compliant technical reports, will also help inspire international and local investor confidence, enhancing sector access to appropriate capital and much needed funding." ■

### Sibanye-Stillwater to assume full ownership of Kroondal

Diversified mining house Sibanye-Stillwater has entered into an agreement with Rustenburg Platinum Mines (RPM), a subsidiary of Anglo American Platinum (AAP), through its subsidiary Sibanye Rustenburg Platinum Mines (Rustenburg operation), which will result in the Rustenburg operation assuming full ownership of the low cost, mechanised Kroondal operation. The transaction will facilitate the life of the Kroondal operation being extended to 2029 and ensure significant value creation for all stakeholders. Sibanye-Stillwater currently operates the Kroondal operation.

Sibanye-Stillwater CEO Neal Froneman commented "We welcome this mutually beneficial transaction which, through the full consolidation of these operations under a single owner, will unlock significant value for all stakeholders by extending the operating life of the Kroondal operation." ■

### BFG Africa appoints a new MD as it expands into broader SA economy

Composites manufacturer BFG Africa, a subsidiary of BFG International, has appointed Bongani Khoza as the new MD, effective from 03 January 2022.

Khoza is leading BFG's expansion plans into automotive, rail and renewable energy sectors in Southern Africa.

BFG Africa is majority black-owned by the Mergence group, a diversified financial services group, after acquiring the stake in 2018, as part of its diversification into the SA industrial sector to bolster SA's manufacturing capacity.

As an initial contract, entered into with the Gibela Alstom Consortium, BFG Africa will clad the interiors of a fleet of 600 commuter trains.

To date, BFG has designed and manufactured the interiors of 51 commuter trains, of which 34 were completed in 2021 at the height of the Covid-19 pandemic.

Before joining BFG, Khoza was an operational improvement specialist at Gibela Rail, responsible for optimising production and helping Gibela suppliers improve operational performance and comply with the train production standards and requirements. ■



Bongani Khoza the new MD.



The Steenkampskraal mine, one of the world's highest grade rare earths mines, situated in the Western Cape of South Africa.

## Steenkampskraal eyes listing on the stock exchange

Steenkampskraal Holdings (SHL), a rare earth (RE) mine in South Africa and one of the world's highest-grade RE mines, has announced a substantial investment in the company by Monoceros Mineral Resources (MMR). SHL chairman Trevor Blench said that the MMR investment would be used for mining activities at Steenkampskraal and to list the company on a stock exchange. "SHL shares will soon be available for investors," he said.

MMR was started by Timothy Crombie, a chemical engineer and data scientist who recognised the need for rare earths in the global transition away from fossil fuels and the important role that Steenkampskraal can play in this transition.

SHL has appointed Crombie as a director and project manager. Crombie explained that rare earths, and specifically neodymium (Nd) and praseodymium (Pr), are used in electric motor magnets to make electric vehicles (EVs). These are key components in numerous other products.

"The production and sales of EVs



The Steenkampskraal core shed. The mine plans to produce 5 000 tons of monazite concentrate per year.

more than doubled in 2021 to 6.6-million and continue to rise rapidly in 2022. Rare earths are also used to make wind turbines, another fast-growing industry," he said.

The rare earths that are used in these two industries are neodymium, praseodymium, dysprosium and terbium. Neodymium and praseodymium represent about 74% of the total economic value of the rare earths reserves at the Steenkampskraal mine.



Steenkampskraal mine geologist, Andree Muntingh, describing the mine's rare earths vein.

Steenkampskraal has a NI 43-101 mineral resource estimate that confirms the presence of 605 000 tons of ore at an average grade of 14.4% total rare-earth oxide (TREO). The mine therefore contains about 86 900 tons of TREO, including 15 630 tons of neodymium, 4 459 tons of praseodymium, 867 tons of dysprosium and 182 tons of terbium. The prices of these four rare earths more than doubled in 2021. ■

## Séguéla gold eyes first gold pour in mid-2023

Canadian-based precious metals mining company, Fortuna Silver Mines, continues apace with construction activities at its Séguéla gold project, located in Côte d'Ivoire. The company is building a 3750 tonnes per day open pit mine at Séguéla, with first gold pour expected in mid-2023.

Paul Criddle, COO – West Africa, commented, "The Séguéla Project is advancing on schedule following the construction decision at the end of the third quarter of 2021. The project is successfully transitioning from detailed engineering design to construction and remains on budget and on schedule to pour gold by mid-2023."

Construction highlights include:

- ❑ The overall project is 32% complete as of January 31, 2022
- ❑ Around \$124.5-million committed
- ❑ Major equipment packages secured

- ❑ Major construction contracts executed
- ❑ Tender process and selection of the preferred mining contractor completed
- ❑ First gold pour remains on target for mid-2023 ■



A 156-person accommodation camp being built at the Séguéla gold project.

## Barrick's focus on quality orebodies delivers results



Kibali Gold Mine, Democratic Republic of Congo.

Gold miner, Barrick Gold, replaced its depletion of gold mineral reserves by 150% and improved the quality of its group reserve grade by 3% in 2021. Reported at \$1,200/oz, the company's attributable

proven and probable mineral reserves now stand at 69-million ounces at 1.71 g/t, increasing from 68 million ounces at 1.66 g/t in 2020.

CEO Mark Bristow said that in a sector

feeling the pinch of dwindling reserves and resources, successful exploration continued to replenish the company's asset base and target pipeline, securing its business plans well into the future.

"While we look closely at all new business opportunities, we believe finding our ounces is always better than buying them. That's why we're still discovering real value at the end of our drill bits," he said.

The growth was led by the North America and Africa & Middle East regions, which contributed over 8.4 million ounces of attributable proven and probable reserve gains before depletion.

In North America, significant gains were driven by the completion of the updated feasibility study of the Goldrush underground project, which increased Goldrush's attributable proven and probable mineral reserves by 3.6 million ounces to 4.8 million ounces at 7.29 g/t. At the Turquoise Ridge complex, attributable proven and probable reserves increased by 1.4 million ounces before depletion, principally off the back of a revised geological model at Turquoise Ridge Underground.

"In Africa, Bulyanhulu completed an updated underground feasibility study on the Deep West portion of the orebody, allowing us to increase attributable proven and probable reserves by 0.77 million ounces before depletion through the conversion of inferred mineral resources. Staying in Tanzania, a fully optimized integrated mine plan at North Mara has increased attributable proven and probable reserves by 1.1 million ounces before depletion.

Our two Tier One mines in Africa also delivered strong results, with Kibali able to more than replace depletion of reserves and Loulo-Gounkoto replenishing 98% of depletion for the year," Bristow said. ■



Bulyanhulu Gold Mine, Tanzania.

### Namibia Critical Metals identifies drill targets at Erongo project

Namibia Critical Metals has completed a multiple tool geophysical survey over the Kanona Target on the Erongo Project for drill target generation over previously defined coinciding gold and arsenic anomalies. The company has a 95% stake in the Erongo and Grootfontein projects.

Darrin Campbell, president, said "We are encouraged by the results from our early-stage exploration activities throughout 2021 and are excited to begin the first phase of drilling on the Erongo Project where solid exploration by systematic soil sampling and multiple tool ground geophysics has identified a first drill ready target."

The Erongo and Grootfontein projects consist of three exclusive prospecting licences (EPLs) with a total area of 1 728 km, and cover ground prospective for orogenic gold mineralisation and various types of base metal mineralisations. The company's EPLs are located in the Central Namibian Gold Belt, which hosts a number of significant orogenic gold deposits including the Navachab Gold Mine, B2Gold's Otjikoto Gold Mine and Osino's more recent discovery of the Twin Hills deposit. ■



## SEIFSA calls for Government support for sustainable economic recovery



Lucio Trentini SEIFSA CEO.

A shrinking domestic market, declining production, weak production sales, a smaller contribution to the economy, increasing joblessness, cheap imports and low investment levels are just some of the issues faced by the metals and engineering (M&E) sector, says the Steel and Engineering Industries Federation of Southern Africa (SEIFSA).

These challenges do not only plague the M&E sector. Their knock-on effects are felt throughout the economy due to its role as supplier and customer into the auto, motor, mining, construction and other manufacturing sub-industries.

“Manufacturing companies play an integral part in the supply chain of the South African economy and the sector will struggle to recover without support. It already relies heavily on demand from Government projects to boost its production and sales, especially for products such as steel and other downstream products. This is why the Government must speed up the implementation of its infrastructure investment plan and reforms across state-owned enterprises (SOEs). The lack of progress on these and other projects is delaying the revival of our economy,” says Lucio Trentini, the CEO of SEIFSA.

Some form of protection against the dominance of imports while promoting domestic manufacturing and suppliers can also make a difference, though in the longer term the international competitiveness of the sector will need to improve before local producers can assume the role of preferred supplier to both domestic and international markets, he says.

Industry has expressed its concern about the stubbornly high unemployment rate and SEIFSA has called on the Government to address the issue, while finding ways to reduce the cost of electricity, diesel and petrol and help put the economy back on track.

The industry body has advocated for infrastructure development as a means to promote industrialisation in South Africa, especially in the M&E sector as it feeds into infrastructure projects from an input supplier perspective. But for recovery to take place, there is a need for clear purpose and strong support for Government projects, says Trentini.

“While it is not possible to state, with a degree of certainty, how the year ahead is likely to pan out, it is probably safe to say that 2022 will be marginally better than 2021. However, a lot hinges on the Government’s planned infrastructure rollout and the trajectory the Covid-19 pandemic takes in the country in the months to come,” he says. ■

Cheap imports and low investment levels are just some of the issues faced by the metals and engineering sector.



### SASOL INVITES ALL THE INTERESTED PARTIES TO PARTNER FOR THE BIOGAS UTILISATION/BENEFICIATION TECHNOLOGIES AT ITS SECUNDA OPERATIONS

Sasol Secunda operations has a biogas stream that is generated from the process operations.

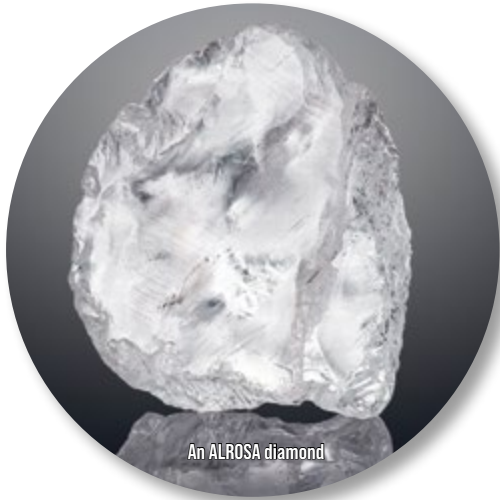
Sasol is inviting all the interested companies to participate in a request for information (RFI) process relating to the use of biogas by extracting value from the biogas stream while ensuring safe, environmentally friendly and legally compliant handling of the biogas.

### Closing date for submissions is 30 April 2022

The main objective of this RFI is to successfully identify potential vendors proficient in biogas handling technologies.

Interested companies may apply for access to the RFI by forwarding their company profile and contact details to: [BiogasUtilisation@sasol.com](mailto:BiogasUtilisation@sasol.com).

## ALROSA offers the market additional supplies of rough diamonds



An ALROSA diamond

In line with its approach of fostering long-term sustainable development of the diamond market, diamond producer ALROSA is offering its customers an opportunity to adjust their diamond purchase schedules under trading sessions.

The demand for rough diamonds in



Aykhel, Republic of Sakha, Russia.

early 2022 as well as in the second half of 2021 was outstripping supply, as cutters were actively buying rough to restock and

fulfil the orders placed by jewellers and retailers, the company said.

Given the primary importance of a balanced market and the need to meet the real-backed demand, ALROSA is offering its long-term customers a new option to adjust supply schedules between trading sessions. As a result, holders of long-term contracts can buy rough diamonds from their allocations ahead of the schedule by shifting booked volumes to an earlier date, ALROSA stated.

“The first quarter of the year is traditionally a period of active rough diamond purchases, as cutters seek to stock up after a holiday season in retail. The high season of 2021 was one of the most successful in the entire history, as we see robust demand from our customers underpinned by real orders. By reaffirming its commitment to a prudent and balanced policy aimed at sustainable progressive growth of the industry, ALROSA is offering its customers a new option of adjusting diamond purchase schedules within their allocations by requesting part of the booked rough diamond volumes be moved to an earlier date. We believe that this innovation, together with the Gokhran auction slated for late February 2022, will speed up progress in addressing current market deficit. With the same goal in mind, we will hold an additional tender between trading sessions. We will offer the rough diamonds highly sought-after by cutters as soon as these goods leave the work-in-progress,” said ALROSA’s Evgeny Agureev. ■



Underground mining at Alrosa’s operations.

### Mako commences drilling at Korhogo project

ASX-listed Mako Gold recently commenced with a 7 000 m, 1 400-hole auger drilling programme on the Ouangolodougou and Korhogo Nord permits which constitute the Korhogo project. Both permits are 100% owned by Mako and are easily accessible from the existing Mako field office.

Mako’s MD, Peter Ledwidge commented: “We are pleased to be advancing exploration on our Korhogo Project in the highly prospective Birimian greenstone belt which hosts

Barrick’s 4.9 moz Tongon Gold Mine. We are fast-tracking the auger drilling sampling programme with two rigs on the ground so that we can commence a 10 000 m AC drilling programme when the auger results are received. We are fully financed to advance this exciting new greenfield programme on the Korhogo Project, as well as the Napié Project which remains our primary focus as we rapidly progress towards our mineral resource estimation.” ■

## Tharisa signs MoU with Total Eren and Chariot for solar photovoltaic project

Total Eren and Chariot will develop, finance, construct, own, operate and maintain a solar photovoltaic (PV) project for the supply of electricity to the Tharisa Mine.

Tharisa, a platinum group metals (PGMs) and chrome co-producer listed on the Johannesburg and London stock exchanges, has signed a comprehensive Memorandum of Understanding (MoU) with Total Eren, an international renewable energy Independent Power Producer (IPP), and Chariot, the African focused transitional energy company, Tharisa said in a statement.

The MoU, which is a precursor to the signing of a long-term power purchase agreement (PPA) for the supply of electricity on a take-or-pay basis, envisages the partners develop, finance, construct, own, operate and maintain a solar photovoltaic project (PV project) for power supply to the Tharisa Mine, located in South Africa. The project is expected to provide 40-Megawatt peak (MWP) initially, with demand expected to increase over the life of the Tharisa Mine,



Tharisa signs MoU with renewable energy firms Total Eren and Chariot.

adequately covering Tharisa Mine's current energy requirements.

On 29 September 2021, Tharisa outlined its commitment to reduce its carbon emissions by 30% by 2030 and become net carbon neutral by 2050. The reduction of the use of grid power by the Tharisa Mine will be accelerated through the implementation of this and other renewable energy projects.

Tebogo Matsimela, head of ESG at Tharisa, commented: "Tharisa plays a significant part in the global energy transition movement, and we are committed to producing these key metals in a sustainable manner. The solar power solution provided by Total Eren is but one of several steps we are taking to ensure our flagship Tharisa Mine, which has a life of mine of over 50 years, has a reduced carbon footprint." ■

### AACHEN™ HIGH SHEAR REACTORS

**PROCESS OVERVIEW**

**TECHNICAL LIBRARY**

**WATCH THE VIDEO**

**BACKGROUND**

The Aachen reactor is a **highly efficient mass transfer device** developed alongside Maelgwyn's InnoFlo® flotation technology.

The unit can be used for any application where it is required to intimately **mix a gas with a liquid** but has been found to be **particularly suitable for gold leaching** applications where it is required to **boost the dissolved oxygen levels** of slurry either prior to, or during the leach reaction.

**SUITABILITY**

Aachen reactors are particularly **suited for the treatment of transitional material** consisting of a **mixture of oxide and sulphides**, or where sulphide grades are too low/variable for flotation.

Aachen reactors may be applied in a **variety of ways**. Can be used on a variety of **ore types** to **increase gold and silver recoveries**:

- Pre-Ox
- AAL - Aachen Assisted Leach
- Leachox™

Currently there are over **60 Aachen reactors installed** globally.

**USES**

Can be used to **increase the leach kinetics in gold and silver** operations, by **blowing the Normal diffusion layer** and removing the **passivation deposits**.

Aachen applications for gold ores include:

- Refractory ores
- Transitional material
- Oxides
- Gold tailings retreatment
- Cyanide detox

**BENEFITS**

- Increased gold recoveries/lower residue grades
- Accelerated leach kinetics
- Reduced cyanide consumption
- Improved oxygen utilisation
- Increased tonnage without compromising recovery

**AACHEN**  
HIGH SHEAR REACTORS

**MAELGWYN MINERAL SERVICES AFRICA**

+27 11 474 0705

1331 Staal Street, Stormill Ext 2, Roodepoort, 1709, South Africa

www.maelgwynafrica.com

mmsa@maelgwynafrica.com

## IMPLATS receives award for sustainability

Platinum miner Impala Platinum (Implats) has been chosen as one of only four JSE-listed metals and mining companies to be included in the S&P Global Sustainability Yearbook 2022 and the only company awarded the Metals and Mining Industry Mover Award.

The Group achieved an overall 60% score for its integrated management approach to sustainability and its disclosures and performance across environmental, social and governance pillars. This is a marked improvement on the Group's 2020 score of 48%, the company said.

Implats' CEO, Nico Muller said, "Our notable achievement is testament to our commitment to and progress in embedding sustainability into the way we work. At Implats, we aspire to become an industry leader in ESG, producing metals that sustain livelihoods beyond mining."

This year, more than 2 100 companies, representing over 45% of global market capitalisation, participated in the Corporate

Sustainability Assessment, and over 7 500 companies were assessed for potential inclusion in the Yearbook. The S&P Global Corporate Sustainability Assessment provides detailed ESG benchmarking insights on sustainability and business strategy. S&P global ESG scores are based on companies' ESG policies, programmes and in-depth ESG information.

To secure an Industry Mover Award, a company must achieve a score within the top 15% of its industry and register the strongest year-on-year improvement in its industry. To be listed in the S&P Global Sustainability Yearbook, companies must score within the top 15% of their industry and must achieve an S&P Global ESG Score within 30% of their industry's top-performing company. A total of 81 companies from the Mining and Metals industry took part in the 2021 Dow Jones Sustainability Indices corporate assessment. Of these, only 19 were finally included in the S&P Global Sustainability Yearbook 2022. ■



Implats aspires to become an industry leader in ESG.

## Shanta Gold unlocks exploration success

East Africa-focused gold producer, Shanta Gold, has provided an update on reserves and resources for its projects in Tanzania as at 31 December 2021.

Eric Zurrin, CEO commented: "Shanta has once again replaced all annually mined ounces in 2021 with new reserves, as well as extending the mine life at New Luika Gold Mine to at least the end of 2026. This marks the third consecutive year in which we have replaced mined reserves across our portfolio through successful exploration, which remains key to unlocking long-term, sustainable returns for our shareholders."

During 2021, the company invested \$4.4-million in exploration, with the 31 600 metres drilled in Tanzania returning 110 000 ounces of new reserves, whilst also expanding Shanta Gold's regional resources outside of the New Luika mine plan.

"The upgrading of about 80 000 oz grading 4.31g/t to the proven reserve category from probable following grade control drilling also significantly contributed to the de-risking of our 12-month production outlook. Longevity across our prospective portfolio of mining and exploration licences is a core value lever," concludes Zurrin. ■



Drilling taking place at New Luika gold project.



George Bennett CEO.

## Phalaborwa Rare Earths test work demonstrates robust fundamentals

Rainbow Rare Earths recently received positive results from an ongoing phased test work programme at the Phalaborwa project, in South Africa. The test work is being conducted in conjunction with ANSTO Minerals in Australia, a critical and strategic metals processing expert, and K-Technologies, a processing technology developer located in the USA (K-Tech).

The results of the test work are enabling Rainbow to develop an economic rare earths extraction flowsheet as part of the feasibility study for the project. Results to date have provided the company with additional optimisation opportunities to explore, which can reduce both operating and capital costs for

the project. The next phase of the test work programme is currently underway and includes a number of trade-off and project optimisation studies.

Rainbow Rare Earths CEO, George Bennett, commented: "We are delighted by this positive test work and are very reassured that results received to date continue to demonstrate Phalaborwa's robust fundamentals. The studies have identified several key opportunities for capital and operating cost savings as well as underscoring the significant environmental benefits of the project. The potential to participate further downstream in the value chain and produce rare earth oxides with 99.5-99.9% purity has been confirmed by K-Tech's study, which also highlights flexibility for phased project development if required." ■

## Sukari underground transitions to owner mining

Gold miner Centamin has announced that following an independently managed contractor tender process, the underground operations at its Sukari Gold Mine, located in Egypt, will transition from contractor-mining to owner-operator mining, with immediate effect. This change will deliver significant cost savings and improve operational control and mining flexibility, whilst also enabling the company to upskill the local workforce.

The decision to move to owner mining, following the expiry of the current five-year contract, has been based on the following:

- ❑ Reserve growth – the 200% increase in Sukari underground Proven and Probable Reserves, as announced in December 2021, underpins an eight-year underground life of mine, with identified near-term growth targets to extend beyond a ten-year life of mine
- ❑ Leadership team – the operational leadership at Sukari has been significantly strengthened with experienced underground expertise and increased investment in the development of the national workforce
- ❑ Operational benefits – an owner-operator model including risk-based analysis against the submitted contractor-mining tender proposals identified significant operating synergies for the broader Sukari operations
- ❑ Cost savings – the transition to owner-operator mining is expected to generate long-term cost savings of an average \$19-million per annum from 2023 onwards compared to the 2021 cost base
- ❑ Mine life extension and upside – 90 000 metres of underground drilling has been budgeted for 2022, including identified near-term growth targets to extend the underground beyond a ten-year life of mine and helping to support the underground expansion study which is due for completion in H2, 2022. ■



Sukari open-pit mine.



An image of sukari's underground operations.



### ifm solutions for vibration screen / feeder monitoring

**How to ensure a safe operation against excessive structural displacement?**

A vibrating screen is used to sort different size rocks or other products, the force is generated by using eccentric weights or eccentric bearing set to produce an angular orbital motion. When using weights, they are mounted on the exciter motor shaft for small screens and on gearbox shafts for larger screens. In case of a catastrophic failure, the machine can automatically be switched off to avoiding a safety risk to other equipment and people nearby. To monitor the trend of the screen movement, displacement is required in horizontal and vertical axis. ifm vibration controller type VSE is capable of detecting tenths of millimeters and re-transmitting the data via different platforms

**How to protect the screen against a sudden increase of temperature?**

The efficiency can be assessed by monitoring the variation of the temperature in the motors and/or gearboxes. Process quality will only be met by ensuring the vibration and temperature on each point are measured and timeously transmitted. In addition to temperature measurement the ifm temperature sensors are able to send internal sensor diagnostic information from each point of measurement, building up a reliable system based on auto-check. To perform the diagnostic function ifm provides a IO-link Master to Fieldbus protocol for connection of analogue devices and temperature PT100's.

ifm offers the complete screen vibration package solution. Visit our website at: 

ifm – close to you!  


www.ifm.com/za  
+27 12 450 0400

# Commodity boom drives demand for

The commodity sector's favourable performance streak, driven by robust demand across all commodity sectors including battery minerals, is carrying through into 2022 and has suppliers to the mining sector upbeat regarding the outlook for this year. In fact, equipment supplier Babcock has an order-book surpassing expectations, MD David Vaughan tells *Modern Mining*.



“Demand for Babcock’s range of construction and mining equipment is extremely strong and we have a solid order-book going into 2022. Our customers have been lining up to take delivery of their equipment fleet – a sure sign that industry is keen to make the best of this year.”

The equipment supplier credits its ongoing success in the mining sector to the premium quality products that are renowned for their productivity, reliability and fuel efficiency, and are well aligned to Africa’s arduous mining conditions. Babcock is the exclusive distributor of major international brands including Volvo Construction Equipment, Sennebogen and SDLG.

“The strong demand for most commodities has translated into sturdy demand for Babcock’s mining equipment, especially for our large-scale machines, which are able to handle massive payloads and thus deliver quick returns,” says Vaughan. “Interestingly, we are seeing that the world-wide move for clean, green sustainable energy solutions is fast-tracking developments in the electric vehicle (EV) and renewable energy segments, which, in turn, is driving demand for energy metals. But this is not to say that fossil fuels are taking a back seat. Coal remains

the primary energy source driving African and Asian economies.”

With demand for energy metals and bulk commodities on the rise, the Northern Cape, South Africa’s largest province, is experiencing exponential growth.

The region is rich in resources, including iron ore, manganese and anthracite, as well as energy minerals such as zinc, nickel, lead, copper and cobalt.

Customer-centric Babcock, which has a branch network in Kathu in the Northern Cape, is mulling over the opportunity of growing its parts holding division and after-sales offering to keep apace of the region’s growth.

The Northern Cape is home to manganese miners Hotazel Manganese Mines, Kalagadi Manganese and Kudumane Manganese Resources as well as opencast miner Afrimat, iron-ore miner Assmang, Anglo American’s Kumba Iron Ore mine and Petra Diamonds, among others.

## Robust demand for Babcock equipment

The mining sector accounts for a large percentage of sales for Babcock, with continued demand for its larger heavy hauling products such as excavators,

# Babcock equipment



applications and excel in the toughest mining conditions. For instance, the Volvo EC950 and Volvo EC750 crawler excavators come standard with a Volvo D16 engine – this allows

particularly the Volvo EC950 and Volvo EC750 crawler excavators.

Babcock's success in this market is a clear indication that customers are looking for greater choice and is testament to the popularity of the premium construction brands offered. Volvo construction products have been designed specifically for challenging mining

## Turning challenges into opportunities

Although global supply chain challenges stemming from the COVID-19 pandemic have hampered 'business as usual', Babcock took the opportunity to streamline its operations and drive improved efficiencies, reduce waste and enhance sustainability in all of its branches.

"At Babcock, we took a closer look at our business and identified ways to improve our operations. We have since restructured our business for increased efficiency," says Vaughan.





the excavators to deliver increased horsepower and improved fuel efficiency, making them ideal for the heavy-duty mining sector.

The products also come equipped with intelligent technology for improved productivity and greater digging force which helps reduce cycle times, making it an attractive option for cost-conscious miners.

Other key attributes of the Volvo EC750D are its larger bucket capacity for more tonnes per hour and enhanced hydraulic pressure and flow – features that enhance machine performance and

allow machines to load more material in one load, for greater productivity.

With fuel costs remaining one of the top three expenses for any mine, fuel-efficient equipment such as the Volvo EC950 and Volvo EC750 crawler excavators are the ideal choice for cost-conscious miners.

“The EC750D is equipped with efficient technology to ensure outstanding digging force in any application and has proved to be an extremely popular machine due to its reliability, high production capabilities and low fuel burn,” comments Vaughan.

Flagging products in the Volvo range that complement each other, the Volvo 60-tonne (t) A60H articulated dump truck and 90 t EC950E crawler excavator as perfectly suited to South Africa’s tough mining conditions. “The EC950E heavy-duty excavator is designed to load the massive A60H and delivers fuel efficiency, with a powerful 16-litre engine,” he says.

#### **After-sales service and financial support**

Babcock prides itself on its after-market sales service and ensures that all its Volvo CE machinery is backed by strong after-market support service.

“Essentially, it is a question of how quickly we are able to react to supply the parts required to repair equipment during a break-down. We are cognisant that miners demand a high level of productivity and that equipment break-downs affect a miner’s ability to deliver on target,” notes Vaughan.

With extensive stockholding at its various branches to ensure that stock is always on-hand, Babcock’s network of branches are situated close to key mining locations, allowing for the speedy shipment and transport of products to the mining operations.

Vaughan says that Babcock focuses on long-term, mutually beneficial partnerships. “We have a proud track record of maintaining our customers and we believe that business is earned, not owed,” he comments.

Babcock also offers Volvo Service Agreements that allow customers to select a bespoke combination of value-adding benefits, including Genuine Volvo Parts, as well as Uptime, Productivity, Safety, New Life and Volvo Fuel Efficiency Services. These service agreements help to promote long-term fuel efficiency and reduce overall fuel consumption and CO<sub>2</sub> emissions.

The company recently added Volvo Financial Services (VFS) to its offering – a direct financing portal that provides integrated financial solutions directly to Babcock’s South African customers. VFS, a market-related financial service to customers of the Volvo Group’s truck, bus and machinery brands, operates as part of Volvo Group Southern Africa, including Volvo Construction Equipment and SDLG.

## **Babcock**

Babcock has over 60 years’ experience in the construction equipment market, supplying the mining, quarrying, materials handling, construction and road building industries with premium construction brands, and has been the exclusive regional distributor for Volvo Construction Equipment since 2000.

Volvo CE machines have been setting the industry standard since 1832 through Volvo’s global network of dealers and technicians committed to offering around-the-clock support, machine monitoring and world-class parts availability.

The company has been operating in Africa for more than 125 years and has an extensive footprint across southern Africa. It offers critical support to customers in a wide range of sectors.





The offering helps Babcock customers safeguard traditional credit facilities for other capital requirements by opting for financial services such as instalment sales agreements and finance leases from VFS.

Plans are also afoot to launch a Volvo-backed insurance product that will offer Babcock customers protection against financial risks through a range of insurance packages for Volvo Construction Equipment and SDLG machinery, tailored specifically to client needs and adapted to local conditions.

### Training and skills development

Babcock represents premium brands that are at the cutting edge of product development; constantly enhancing and advancing their product ranges in line with the latest technology developments. This, in turn, requires that Babcock staff (sales and technicians, in particular) are well versed with the workings and offerings of the latest products.

“For example, prior to the local launch of the Volvo R100E rigid hauler in 2018, the technical and sales staff underwent extensive product training at the factory in Scotland. This ensures that our staff are equipped with the highest level of training possible enabling us to deliver sound after-market service to our clients. Operators also went through a rigorous training programme to ensure that the machines would be operated at their highest level of efficiency and deliver optimum productivity,” explains Vaughan.

Aside from product-specific training, the company has a separate division – Babcock Education and Training – an accredited skills development and training services provider with accreditation from

QCTO and relevant SETAs, and offers a range of training qualifications, from plant/machine operation, through occupational trades and apprenticeship to soft skills, giving learners the best possible chance for employment.

As part of the Babcock International Group, Babcock ensures that its students have access to the latest industry technologies. Course facilitators are developed from within the group and have a firm understanding of its customers’ operational needs.

“We also offer programmes which provide our learners with the opportunity to gain experience from other Babcock businesses. Our partnerships with OEMs like Volvo, DAF, SDLG, Sennebogen and Lincoln Electric ensure that our course material exceeds industry standards. Couple this with Babcock’s ISO quality certification, commitment to ongoing training, and the close relationships we have with our OEMs, and it’s easy to understand why Babcock is trusted to deliver,” says Vaughan. ■

### Take-aways

- ❑ Demand for Babcock’s range of construction and mining equipment is high and the company has a solid order-book going into 2022
- ❑ Products offered by the company are specifically designed for challenging mining applications and excel in the toughest mining conditions
- ❑ The company prides itself on its after-market support service and focuses on long-term, mutually beneficial partnerships.
- ❑ A direct financing portal provides integrated financial solutions to Babcock’s South African customers
- ❑ Students have access to the latest industry technologies and the highest quality training

# Helium constraints

## Reenergen in a sweet spot

The helium market was projected to return to balance in 2022, but unpredicted events over the past few months, including multiple fires at the world's largest helium facility, have pushed the already constrained market to critical levels, driving the spot price to 'unimaginable' heights, Reenergen CEO Stefano Marani tells Modern Mining's Nelendhre Moodley.

This means that emerging helium and domestic natural gas producer Reenergen, which counts down to commercial production from its flagship Virginia Gas project in the Free State in the next two months, does so at a most propitious time.

Dual listed Reenergen's principal asset is its wholly-owned Tetra4 facility, which holds the only onshore petroleum production right in South Africa, giving it first mover advantage on distribution of domestic natural gas.

The company's Virginia Gas Project, located some 250 km southwest of Johannesburg, is a natural gas find with one of the richest helium concentrations recorded globally.

The project comprises production rights of 187 000 ha of gas fields across Welkom, Virginia and Theunissen in the Free State, with additional exploration rights in Evander.

"The source of the Virginia Gas Project's natural gas is primarily microbial, originating from deep within the Witwatersrand Supergroup. Aside from containing some of the richest helium concentrations globally, the natural gas is extremely pure with an average of over 90% methane," explains Marani.

The Tetra4 production right targets the extraction of all petroleum products – chiefly natural gas, which contains methane and helium.



Stefano Marani, Reenergen CEO.



The junior miner will bring the first phase of its close to R1-billion project into production in April, becoming the first supplier of helium in sub-Saharan Africa, and first commercial supplier of liquefied natural gas (LNG) in South Africa.

"We are excited to finally see Phase One of the project come online which will validate the proof of concept and the hard work that has gone into developing the project," says Marani.

Phase 1 of the production is expected to produce 350 kg of helium a day – "delivering the equivalent of LNG to power 400 trucks," explains Marani.

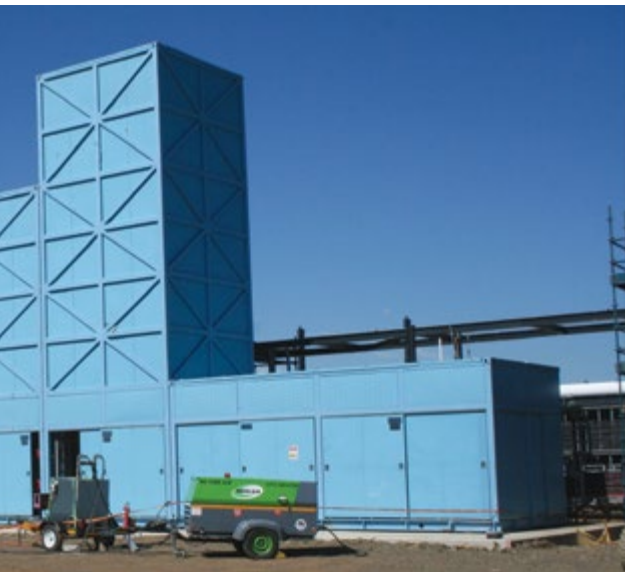
Phase 2 will ramp up production to 5 tonnes (t) of helium per day by 2024, which will account for roughly 8% of the world's market production.

Although the licence for its wholly-owned project runs to 2042, Marani flags its extensive landholding accompanied by vast untapped reserves.

"We have only explored 14% of the tenement with many more exploration programmes to be undertaken in the future. As it stands, the gas reserves on



Construction of water circulation reservoir.



the Virginia project will outlive the current production right.”

Following the completion of a recent drilling programme, a reserve estimate by international Reserves and Resources accreditation agency Sproule pointed to a significant increase in methane and helium reserves at the Virginia Gas project.

“Increasing our helium reserves by over 600% since March 2019 is a great step forward in achieving our goal and highlights the enormous potential of Virginia to become a significant helium supplier not only to South Africa but globally as well. Additionally, an estimated 400 petajoules of methane at a proven 2P level also positions the company exceedingly well to become an integral part of South Africa’s energy mix,” Marani explains..

The junior miner has already inked a number of off-take agreements, including its first agreement with Consol Glass, effective once Phase 1 of the



Virginia Gas Project is commissioned in 2022.

Regeren is contracted to deliver, over a five-year period, 14 t of LNG per day.

Earlier this year, the clean energy producer concluded a deal with the ceramics industry to supply Italtile LNG from Phase 1 of its operations.

The five-year agreement with Italtile will see the miner supply 800 gigajoules of LNG per day to the customer’s site.

Regeren’s export market for helium will in future include the USA, Europe and China.

### Helium market in critical supply constraints

The helium crisis has been on-going since 2019. It was anticipated that increased production from Russia’s Amur Gas Processing Plant (GPP) plant, coupled with new production from Qatar coming online, the market would finally transition from tight supply to one of plentiful supply. But this has not been the case.

In early January, the fire at GPP in Russia rocked

Above: Helium loading station in construction.

Left: First tall structure is the mine wash to remove CO<sub>2</sub>.

Heat exchangers remove the heat during liquefaction.





Above: Laying foundations for large compressors.

Right: Liquefaction compressors.



the helium industry. At the same time, scheduled production from Qatar failed to materialise. According to Marani, additional production from Qatar expected since 2017 has been pushed out with latest news indicating that it will only be coming on-stream in 2025.

Even though the GPP plant is being rebuilt, production is expected to be delayed by at least 12 to 18 months with industry pundits reporting that even when it does come onboard, it will be at a significantly reduced rate.

Further to this, global helium production faced another blow following the US government's decision to sell its helium stockpile, stored in Texas, to the private sector – the process is still pending. The facility in Amarillo Texas was producing

approximately 10% of world helium supply but suffered a significant technical failure in late January this year, and at present there is no indication as to when the plant could be operational again.

These unforeseen challenges to the helium market are set to have a significant impact on end-users, compelling them to revise their business expectations, particularly those wanting to grow their businesses.

In a recent interview posted on Renergen's website, Cliff Cain, president of The Edelgas Group, a US-based gas and equipment supplier, noted that the increased demand is forcing refineries to produce at maximum capacity, with producers such as ExxonMobil declaring 'a record year'. The market constraints have seen helium prices skyrocket with refineries selling helium "somewhere between \$220 and \$300/1000 cubic feet pm in times of crisis.

"Any product available on the spot market is going to dry up pretty quickly," which will quickly drive up the pricing of helium – possibly to \$1 800/mcf – which is ludicrous," said Cain.

He added that producers of semi-conductors, for

whom helium is a critical path product, could lose millions of dollars per day.

"The reality is that pricing becomes secondary to supply. There are companies out there that will pay double and even triple the current prices just to ensure that they have helium."

For Renergen, which is blessed with "enormous supplies" of helium, the outlook remains highly favourable.

### Renergen goes crypto

The clean energy producer recently facilitated the first helium spot market initiative with a pre-sale of 100 000 mcf (mcf = 1 000 cubic feet) to Argonon Helium US, a Delaware incorporated helium trading company.

"The 19-year agreement allows Argonon the right to purchase up to 100 000 mcf of helium from Renergen's Phase 2 plant at a predetermined price, ranging from \$230 to \$270 per mcf," the company said.

The arrangement is intended to facilitate the creation of a liquid spot market for helium, making it accessible to all investors through the Argonon platform.

"Essentially, the crypto currency platform is intended to establish a mechanism for Renergen to sell helium to Argonon in the spot market when the Phase II plant becomes operational. A portion of funds from the pre-sale will be to be used to accelerate Phase II drilling at Virginia Gas Project and reduce overall dilution to equity holders," explains Marani.

Further to this, South African company, Purple, has been appointed to create a digital platform to track and manage the units as they are exchanged and traded.

Argonon was established by Richard Charrington, a London-based commodity trader focusing on soft

## Helium

Helium is a rare element used for space exploration, rocketry, high level scientific applications, in the medical industry for MRI machines, fibre optics, electronics, telecommunications, superconductivity, underwater breathing, welding, nuclear power stations and lifting balloons.



operates in what Marani describes as an “opaque market”.

“The tokens are a way to democratise the trade and price of helium, which has historically been a tightly held trade.”

The move to establish a crypto-currency platform augurs well for other commodities with the expectation that more miners, especially junior miners, will take up the option of trading in tokens as a means of capital raising.

Renergen expects that, through trading in tokens, it will receive a price of around \$250 per mcf for its helium. Interestingly though, hospitals typically pay between \$1 000 and \$1 300 per mcf. ■

commodities specifically to procure helium from Renergen and to create a tradeable market in the commodity.

While still highly debated, trading in crypto-currency and tokens offers numerous advantages given that, “it is a sophisticated low-cost shortest path to establishing a new market for helium,” since helium

## Trust in performance


**Ensure superior results**

EXELTOP™ combines the best of our experience and technologies into a advanced built-in regulator for shielding gas cylinders. Innovation is our focus at Air Liquide, we are driven to ease your work and assure your safety and earn more.


Gas flow stability & accuracy for high performance gas operation

- A quick and safe connection every time
- Intuitive design, easy to use
- Built to resist with strengthened guard

Cnr Old Vereeniging & Andre Marais Streets, Alrode, South Africa, 1451 | +27 87 288 1100







**EXELTOP™**

# Akobo Minerals targets gold production

Scandinavia-based gold exploration company, Akobo Minerals, is busy progressing its Segele and Joru assets in Ethiopia, aiming to be a gold producer by as early as the end of 2022.



Jørgen Evjen CEO of Akobo Minerals.



Cathryn McCallum Head of ESG Akobo Minerals.

“Akobo Minerals is excited about where we are on project development. In fact, 2022 will be a seminal year as we move from an exploration to a mining operation,” says Akobo Minerals CEO Jørgen Evjen.

As the explorer looks to make the jump to gold producer, Evjen says that over the next few months the company will be making available new resource figures that will inform present and potential investors of the anticipated levels of gold in the Segele system.

With growth in mind, Akobo Minerals is also continually looking to see where it can further develop by leveraging the competence it has built over a number of years of operating in Ethiopia.

“This means looking at potential new mineral extractions and new geographies. The focus now is definitely on building the Segele operation, but the company is not standing still and when and where opportunities arise, we will certainly consider them.”

While the gold developer targets speedy project development, it remains mindful of not expanding



too quickly; “of not stretching beyond our means in the hope of realising financial success earlier on the curve than we should,” says Evjen.

“We have achieved this by ensuring no one area of the company develops to the detriment of any other. Finance needs to work in conjunction with human resources; operations in accord with marketing; legal in harness with ESG. In this way, all stakeholders’ needs are taken into consideration and every employee from every department feels that they are contributing to the success of the company.”

## Segele and Joru - attractive exploration projects

Akobo Minerals’ drilling activity at Segele has demonstrated exceptionally high gold concentrations.

The results from the latest exploration drilling

First flight landing at Akobo funded new airstrip.



# before year-end



have proven that Segele is particularly gold-rich, with several bonanza-grade sections.

The gold zone is about 190 metres from the outcrop at surface to the deepest drill-intersection, and open towards depth.

“The Segele project already has an Inferred Mineral Resource of 78 kilotons at 20.9 g/t gold established by mining consultants, SRK, back in April last year. This equates to 52,410 oz of gold – a very encouraging result as the company looks to secure its goal of uncovering the potential of the area,” Evjen explains.

With both infill and extension drilling performed during the past year, Akobo expects the mineral resource estimate to increase when the next figures are released shortly. At present, the latest samples are with testing specialist, ALS Ireland, being assayed.

The current drilled area is no larger than 30 m wide by 120 m long, and the majority of the mineralization is located near to the surface.

The deposit has excellent exploration potential

because it is open at depth, and there are additional targets to the East and West.

Given the high grade, Akobo is confident that it will be able to establish a high margin mining operation.

Akobo’s second area of activity in the region is in Joru, where the gold deposit is quite different from Segele, in geology, size, geometry and grade.

Joru is a large system of gold bearing quartz veins hosted in a quartzo-feldspathic body.

Though the overall grade of the deposit is lower than in Segele, the system itself is considerably larger, which will create opportunities over time for much larger tonnage.

“While Akobo recognises exciting opportunities in both of its exploration sites, the company has a strategy of cautious development so as not to stretch its resources. The company has, therefore, made the decision to push ahead with mining activities in Segele and focus on increasing the resource and will continue its exploration work in Joru until it is ready to scale-up its operation to encompass mining

Above: Mineralized zone found in trenches.

Top left: View over the Akobo landscape.

Left: Local gold from traditional panning methods.



Systematic trenching performed.

activities there. Looking further into the future, we are very excited about the numerous other targets in the license area, in addition to the current operations sites,” says Evjen.

### Financing the road to gold production

Akobo Minerals is an equity-financed company, with no external debt.

“It is fortunate that we have long-term relationships with our shareholders who have supported the company since its inception. As operations expand, we will be looking to raise further equity and other offtake solutions to fund development,” says Evjen.

As an innovative mining company, Akobo Minerals is also looking at further activities which include potentially partnering with Ethiopian banks

by supporting them with its own experience to help them to deliver modern financial services for the Ethiopian mining sector.

Aligning management, community & ESG initiatives Akobo Minerals’ experienced Scandinavian management team is working closely with the local workforce to build a world class mining business.

Although the primary purpose of Akobo Minerals is to explore for and find gold, it realises that it has a responsibility to the community in which it operates.

“Our aim is to become a world class mining operation, with a business strategy that focuses on values as well as value. For example, we have placed environmental social and governance issues at the heart

Right: Community interest for new airstrip.

## Akobo Minerals

Akobo Minerals first began operations in 2009, but the company really took off from 2019 when a new management team, an injection of funding and a strategy for growth propelled it forward.

Akobo Minerals determined that by working in and with the community it could take the available local knowledge and – in combination with the latest technologies – create a long-term successful business.

Its success will culminate in gold production commencing by the end of the year.

With further plans for expansion in the coming years, the company is enthusiastic about its own development, the mining industry’s expansion in Ethiopia and the opportunities it can bring to the local community.





of our planning, with an established in-country team working alongside the exploration team.

“We recently appointed Doctor Cathryn MacCallum to the post of head of ESG as we recognise that ESG is a fundamental element in reducing risk right across company,” says Evjen.

Evjen: “We also recognise the need to work with the local community – not with handouts, but with long-term initiatives that allow the locals to build and improve their own community.”

In 2022, the company will roll out a number of initiatives to benefit the local community, from job creation activities through to infrastructure projects.

“Contrary to what may be expected, Akobo is also happy to lend its own experience to both the Ethiopian government and other potential mining companies in order to develop the industry in-country. We believe that there are significant opportunities to expand Ethiopian mining which will, in turn, benefit Akobo as it helps to build a true ecosystem of mining operators and service providers. This will make the country more stable and reduce social, operational and financial risk.”

### Infrastructure development

The company recently funded and built a new airstrip – a core element in its plans for operational expansion.

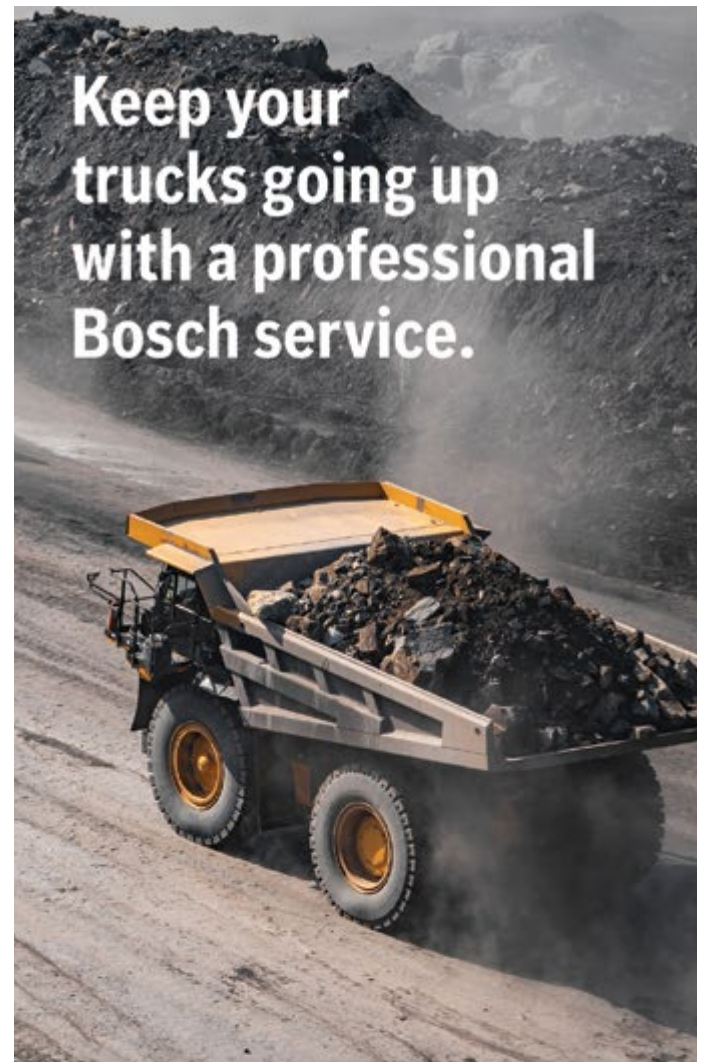
Built over the course of just 70 days for design, approval and construction, the 1 100 m airstrip opened at the beginning of February and lies within a short walk of Akobo’s camp.

It will help the company to bring in goods and personnel more effectively, allow for any medical evacuation and, not least, provide a secure transportation route of gold to Addis Ababa prior to onward distribution to international buyers once gold production commences later this year. Until now, the nearest airstrip was located in Jima, a journey of at least six hours by road.

The area, while remote, has been the focus of a number of strategic infrastructure initiatives by the government in the past decade.

“Over and above the construction of the airstrip, Akobo has contributed to these efforts in a small way and as it moves forward it also sees its role of good neighbour and contributor to the sustainable development of the district and region as strategic to accelerating its own development,” says Evjen.

Access to water remains a concern and the company is currently collaborating with authorities to determine what can be done to improve essential infrastructure work and bring clean water projects to the community. ■



Keep your trucks going up with a professional Bosch service.

One sure way to keep your diesel trucks going uphill and not downhill, is to have your fuel injection system professionally repaired at a **Bosch Diesel Service workshop**. Our certified fuel injection experts are trained to world-class standards and will make sure that the cleaning, servicing, refurbishing and calibration of your diesel injection components are done to the same standards.

All work is done in-house to the **highest standards using quality parts**. To keep your engines running at optimal capacity, book a premium diesel injection component repair today.

[boschdiesel.co.za](http://boschdiesel.co.za)



# Metals to remain supported at elevated price levels in 2022

By Benedikt Sobotka, CEO of Eurasian Resources Group

**2021 was certainly a year for the commodity markets' history books. While we expected a much better year than the Covid-hit 2020, we did not envisage the remarkable price performance of our products, nor the strongest returns of the broader commodities sector in over a decade.**

**C**opper, iron ore and natural gas prices hit all-time highs; the price of aluminium surged to a 13-year high, gaining over 40% YoY; while the price of cobalt more than doubled, reaching its highest level since 2018. The main driving forces for these markets were supply chain disruptions, production restrictions in China, the energy crisis, a stimulus-led consumption boom in the US and depleted inventories.

Going forward, the outlook for the sector remains constructive, with most base metals still trading above historical levels, albeit lower on average compared to 2021. The fading pandemic and the tightening US monetary policy both still have the potential to deliver economic setbacks, but persistent supply chain challenges, a changing inflation landscape and the energy transition should, overall, create a bullish environment for industrial commodities. Even more encouraging are early signs of policy easing in China, which should filter through to the real economy by mid-2022.

GBA electric vehicle.



Benedikt Sobotka, CEO of Eurasian Resources Group.

## Aluminium: solid gains still expected

We believe that aluminium has strong potential to outperform other LME base metals in 2022, having again breached the important milestone of \$3,000/tonne at the start of this year. The market will remain in a sizable deficit for the second consecutive year, with visible inventories at the lowest level since the global financial crisis. China's aluminium supply growth will be constrained by the country's strict energy consumption controls and a slow ramp-up of idled smelting capacity.

Moreover, the world's accelerated decarbonisation efforts and soaring energy prices limit capacity additions outside China. In fact, we could see further smelting capacity cuts in Europe (700 kt or about 14% of ex-Russia European smelting capacity has already been cut). At the same time, aluminium demand is supported by China's infrastructure investments, while the focus on renewables,

rising EVs production and recyclable aluminium packaging should ensure aluminium demand growth is exceeding supply growth globally. As a result, we could see the highest aluminium prices in over 30 years.

The stage is set for cobalt to climb to new highs

Cobalt's 119% price surge through the course of 2021 emanates a very loud and clear message: the market is severely short of the blue metal. As we move into the new year, there are no discernible signs of any fundamental easing, with prices remaining on an upward trajectory as consumers skirmish to secure sparsely available spot units – a situation that will undoubtedly persist throughout 2022 and beyond.

While it seems 'obvious' to us today that much of the tightness is underscored by stellar demand growth from the electric vehicle (EV) segment; just a year ago, most of us would have sniggered with disbelief at the prospect of EV sales more-than-doubling in 2021. Yet it is now a reality, and the pace of EV adoption shows few signs of losing momentum, being supported by the global transition to a greener future. We firmly believe that future EV sales will continue to exceed analysts' expectations, driven by governments' ambitious adoption goals and manufacturers' aggressive sales targets.

Based on these announcements alone, we believe that EV sales' market penetration should exceed 50% by 2030, which is in stark contrast to most analysts' currently conservative forecasts of around 30%. Perhaps an even more powerful force for change will be consumers' booming receptiveness to EVs, incentivised by their performance benefits, lower running costs, improving range, strong environmental credentials, and – perhaps most importantly – falling prices relative to their petrol and diesel counterparts.

Yet, the cobalt market will not be reliant solely on the EV sector for strong demand growth in 2022 and beyond. The use of cobalt-bearing lithium-ion batteries is burgeoning across a spectrum of end-use sectors, from mobile electronics to e-mobility and battery energy storage systems. Even demand from traditional cobalt metal end-use sectors, which account for around a quarter of overall consumption, looks set to undergo a boom this year, spurred by the recovery of the aerospace sector. The International Air Transport Association forecasts that global air travel demand will grow by 52.5% YoY in 2022, while industry heavyweights, Boeing and Airbus, have announced ambitious production targets for this year.



Responsibly produced cobalt.

Meanwhile, cobalt supply is increasingly unable to keep pace with demand. The underlying reason behind this is straightforward: as giga-factories pop up at record speeds (BMI predicts that global battery production capacity will quadruple between 2020 and 2025), developing industrial-scale mines still takes 10-15 years on average. Importantly, downside risks surround the timely commissioning and ramping-up of many existing projects, in view of global shortages of mining equipment and the adoption of the historically troublesome high pressure acid leach technology at numerous mine projects in Indonesia.

Furthermore, the responsiveness of artisanal cobalt supply to elevated prices has been reduced by consumers' growing scrutiny of the cobalt supply chain, facilitated by new tracing solutions, such as the Battery Passport and ReSource, and the DRC government's efforts to introduce stronger controls to the sector. Finally, the movement and availability of cobalt raw materials continues to experience logistical disruptions, which are likely to persist throughout the course of this year. ■

---

*While it seems 'obvious' to us today that much of the tightness is underscored by stellar demand growth from the electric vehicle (EV) segment; just a year ago, most of us would have sniggered with disbelief at the prospect of EV sales more-than-doubling in 2021.*

### Key takeaways:

- ❑ Highest aluminium prices in 30 years projected
- ❑ Likely no easing of cobalt price surge, with cobalt supply increasingly unable to keep pace with demand
- ❑ EV sales' market penetration should exceed 50% by 2030



Christo du Plessis, Zest WEG's sales manager for drives and controls.

# Motors: The unsung heroes behind minerals processing

The role and potential contribution of motors in mines' processing plants is often under-appreciated, but the right combination of motors and drives offers valuable scope for uptime improvements, cost saving and performance gains.

Christo du Plessis, Zest WEG's sales manager for drives and controls, highlights that all systems are driven by electrical motors with more than 60% of the overall electricity consumed in mineral process plants used on these motor driven systems – from mills and crushers to screens, conveyor belts, pumps and fans. However, the importance of these plant workhorses is often overlooked by engineers and operators.

“At the most basic level, there is the issue of reliability and uptime to be considered,” says Du Plessis. “With this high level of reliance on motors to keep plant processes running smoothly, it is clearly in the mine's interest to install quality motors that will not fail unexpectedly.”

He emphasises that plants run as an integrated system, meaning that any single component failure will certainly disrupt other aspects of the plant, and possibly even bring the whole operation to a halt.

The cost of standing time related to a motor fault is generally orders of magnitude greater than the value of the equipment causing the problem.

### Quality, reliability

“Design quality has always been a key focus of WEG motors, with ongoing research and development at our Brazilian factories to achieve the highest levels of reliability and performance,” says Du Plessis. “Around 3% of our annual global sales is re-invested in R&D.”

As importantly, the technological development of WEG motors is being driven by the need for greater energy efficiency, as well as broader functionality to support the value of increasing plant automation. A key factor in both these priorities has been the use of variable speed drives (VSDs). A VSD controls the speed and torque of an alternating current motor by converting fixed frequency and voltage input to a variable frequency and voltage output. This improves system performance by controlling the speed to match the load requirements more precisely.

“This can lead to energy savings of up to 50% in certain applications such as pumps and fans,” he says. “Controlling the speed of an impeller, for instance, can now be done by a VSD controlling the motor speed, rather than through mechanical means such as a valve; the result is great potential for saving on energy consumption and costs.”

### Real-time data

Other important features on VSDs include real-time communication and feedback capability, so that plant operators can view the real-time data, such as amperage and kilowatts of any specific motor. The VSD also captures historical data on fault conditions, as various instrumentation can be built into the drive.

“This helps operators and engineering staff to keep a close eye on operational trends, which also helps to optimise performance and

*“Controlling the speed of an impeller, for instance, can now be done by a VSD controlling the motor speed, rather than through mechanical means such as a valve; the result is great potential for saving on energy consumption and costs.”*

Range of WEG CFW11 VSDs typically used on mineral processing plants.



pre-empt equipment failure,” says Du Plessis. “This is a vital part of ensuring the lowest possible running cost for a productive plant.”

With a focus on optimising plant uptime, Zest WEG ensures a high availability of its low voltage motors in the 525 V range – the power range commonly used in process plants around Africa – up to 450 kW. In the VSD range, there is likewise easy access up to 560 kW rated drives.

To further enhance the suitability of its motors for the mining environment, some features such as Class H insulation have been added as standard items.

“Our W22 motors also have insulated end-shields, for instance, to render them VSD-ready and are standard from our 315 frame upwards,” he says. “This critical feature prevents the VSDs from causing damage to the motor; unlike the alternative of using an insulated bearing, it is also easier to source a normal bearing if customers need to change a bearing on the motor.”

This is part of WEG’s commitment to ensure that its equipment is always fit for purpose, and easily upgradeable should the application require a move from direct on-line starting (DOL) to a VSD at a later stage.

### Efficiencies

WEG’s popular W22 motor range comes in different energy efficiencies, from the IE1 standard efficiency rating to IE3 premium efficiency units and lately the IE4 super premium efficiency motor. Typical value-add features include IP66 ingress protection for the IE3 and IE4 models.

To fully leverage the ongoing advances in motor technology, he highlights that process plants must be able to upgrade existing equipment by retrofitting new models onto their current plant footprint. This can be difficult if OEMs make radical changes to their design without considering the footprint, as mines have to deal with the added time and cost of altering the base-plates. With this in mind, WEG has ensured that 95% of its IE4 units have frame sizes compatible with the IE3 equivalents.

“It has been quite an achievement to fit the higher efficiency motors into the same frame sizes,” he notes. “This is because more iron and copper is usually required in the design to raise the efficiency levels, and this affects the weight and size of the final product. Our R&D team in Brazil has worked hard to overcome this challenge, and has succeeded.”

### Maintenance

Du Plessis emphasises that all moving equipment in



WEG W22 motors destined for the mining sector.



Wall mounted WEG CFW11 Variable Speed Drives with reactor cabinets on a mine site.



Zest WEG's Johannesburg head office facility maintains a comprehensive stockholding of product.



A WEG motor in a screening application.

a process plant – not least the motors and drives – need regular servicing and maintenance, making it crucial that customers have quick and easy access to the right skills and spares. With over 40 years in South Africa, Zest WEG has established a strategic network of branches and warehouses in locations including Rustenburg, Middelburg, Trichardt, Richards Bay, Pietermaritzburg, Durban and Cape Town.

“Many customers don’t keep their own spares, but instead rely on us to maintain that stockholding,”



A WEG motor being installed on a fan.

he says. “Our Johannesburg facility, for example, services the gold fields region with motors, drives and other equipment, and our trucks are on the road every day to deliver.”

These support services include specialised technical input from Zest WEG people, who can give detailed guidance to plant managers who want to improve or upgrade aspects of their operations. When installing VSDs, for instance, there are many variables to consider and implications that may not be obvious.

“Project details like the length of cable to the motor, or the positioning of the VSD in the existing motor control centre, all affect the final design and installation,” he says. “We have plenty of experience in providing engineering guidelines – either to the end-users or the systems integrators that mines often employ to conduct this work.”

To further ensure that motors and drives are optimally selected, installed and maintained, Zest WEG conducts ongoing training for customers and its own staff at its dedicated training facility in Johannesburg. Over 10 600 customers have made use of these skill-building services to date, which includes practical exercises on the equipment itself.

“The explosion of digital communication platforms during the Covid-19 pandemic now also means that we are offering more of our training online,” says Du Plessis. “This has proved very popular among engineers and operators who can’t afford the time away from the plant. Access to our online learning allows us to upskill customers and also open valuable opportunities for improving plant performance.” ■

## Key Takeaways

- ❑ More than 60% of the overall electricity consumed in mineral processing plants is used on motor driven systems
- ❑ Variable speed drives can lead to energy savings of up to 50% in certain applications such as pumps and fans
- ❑ With a focus on optimising plant uptime, Zest WEG ensures a high availability of its low voltage motors in the 525 V range
- ❑ WEG’s W22 motor range comes in different energy efficiencies, from the IE1 standard efficiency rating to IE3 premium efficiency units and lately the IE4 super premium efficiency motor
- ❑ WEG has ensured that 95% of its IE4 units have frame sizes compatible with the IE3 equivalents
- ❑ Zest WEG conducts ongoing training for customers and its own staff at its dedicated training facility in Johannesburg



# KNOWLEDGE IS POWER UNLEASH YOUR INSIGHTS

Sandvik is a world leader in Automation, implementing digital mining solutions for more than two decades.

Sandvik OptiMine® is a powerful suite of digital tools for analyzing and optimizing mining production and processes. It integrates all relevant data into one source, delivering both real-time and predictive insights to improve operations.

Understanding your data is the way to make the most of your mine's resources.



DISCOVER MORE:  
[ROCKTECHNOLOGY.SANDVIK/OPTIMINE](http://ROCKTECHNOLOGY.SANDVIK/OPTIMINE)





Freddy Muger, CEO of Fabchem Mining.

# Underground support solutions for hard rock and coal mines

**Fabchem Mining is a one-stop tailored support solution company to the mining and civil industries. Founded in 1996, Fabchem provides total underground support solutions to hard rock and coal mines. The company has grown to become a trusted manufacturer, distributor and supplier with a footprint across Africa, Australia, North America and South America. By Mark Botha.**

**T**he company specialises in roof support technology that is at the core of making underground mining safer, especially at the great depths of South African mines. Fabchem Mining is a leading manufacturer (OEM) and supplier of Strata control products and solutions to both the mining and civil industries. The company offers a total support solution, from drilling the hole for the tendon, to installation, pre-stressing, grouting and post installation integrity testing.

The company holds several patents over some very innovative products and is the official distributor for Vula Drilling (Pty) Ltd in southern Africa.

According to Fabchem Mining CEO Freddy Muger, Fabchem is a black empowered company with 52.6% black ownership, which qualifies it as a Level 1 B-BBEE contributor.

“This,” says Muger, “means that our clients can claim 135% of their purchases with Fabchem for their B-BBEE scorecard.”

He says the company’s quality management system is certified by the South African Bureau of Standards (SABS).

## Anchors and strata control

As a manufacturer of customised anchors based on clients’ specifications and suitable for any hole size, Fabchem is certified through the SABS to the Quality Management System ISO9001:2015. All product ranges undergo testing by the Council for Science and Industrial Research (CSIR) and all anchors have technical data and drawing sheets.

The company manufactures mechanical, spin,

multi-strand, de-bonded and double corrosion protected type anchors that are manufactured to clients’ specifications.

Fabchem also produces a variety of lock-off barrels to suit various applications.

“Our PLV Series barrel is Fabchem’s newest innovation in barrel technology, which features anti-pre-activation, specified load tension indication and overload tension indication,” says Muger.

## Spin anchors

Spin anchors are used primarily as secondary support in hard and soft rock mines. These anchors are usually point anchored with quick-set resin and, depending on the rock engineer’s requirements, may also be grouted.

“Our spin anchors are supplied complete with dome plate, barrel and wedge,” says Muger. “In the event that the anchor is to be grouted, a grout tube, breather tube and gasket will be provided separately.”

He says Fabchem also manufactures multi-bulb passive anchors with fishhooks, with bulb spacing determined by the client’s requirement.

Spin Trusses are generally used for supporting slips, faults, bullnoses, large roof spans, friable roof conditions (used in conjunction with mesh and straps) and pillar wrapping (support).



The FAB500 lightweight stressing jack

The FAB470 hydraulic stressing pump.



## Mechanical anchors

Fabchem’s mechanical anchors are primarily used in hard rock mines as secondary support in both development ends and in the stopes. These anchors are usually full column grouted



and are supplied complete with dome plate, barrel, wedge and grout fittings (breather tube, grout tube and gasket).

Mechanical trusses, also manufactured by Fabchem, are generally used for supporting slips, faults, bullnoses, large roof spans and friable roof conditions (used in conjunction with mesh and straps and pillar wrapping support).

“Dynamic testing of our anchors is carried out on our 50-tonne (t) test rig,” says Muger. “Pre-load indicators are tested to ensure that they activate at the specified loads and shock testing is carried out on the anchor to simulate a blast in situ.” He says anchor barrels are struck three to four times with a four-pound hammer to check that the anchors do not lose excessive load. Anchors are also tested to destruction to validate ultimate breaking strength.

### Mining consumables

Fabchem Mining produces hydraulic and mining hoses and fittings; drill rods; couplers and drill bits; exploration drill rods; coring bits; core lifters; safety slings; lubricators (steel); oils and lubricants; splitset dollies; roofbolt spanners; spin adaptors; resin and grout.



### Stressing equipment

The company’s stressing equipment includes stressing jacks, stressing pumps and power packs.

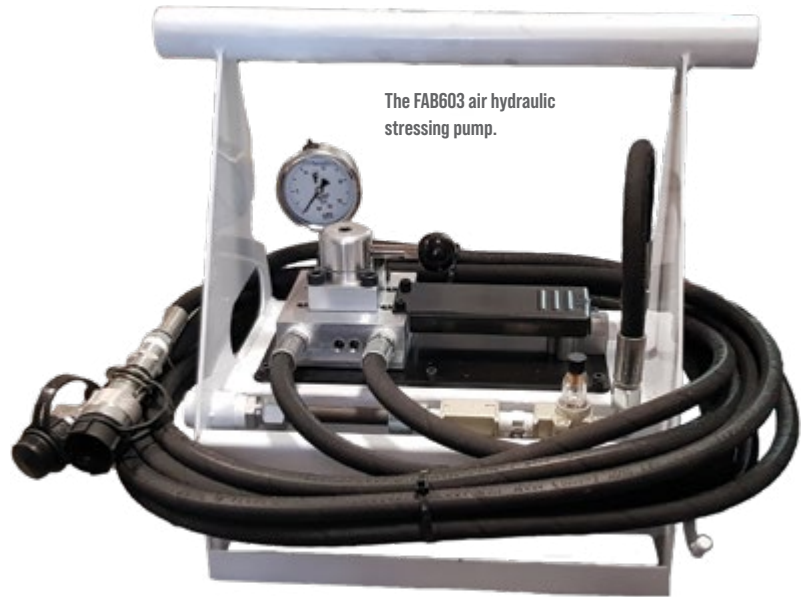
The FAB170 25 t stressing jack, used to tension cable anchors, is suitable for tensioning 13, 15 and 18 mm cable anchors. It features rear gripping, with a 500 mm minimum strand length for gripping, and offers easy gripping wedge or jaw changes. The FAB170 is powered by a double-acting hydraulic pump.

The FAB P55 hydraulic stressing pump is a single-acting, 4-way valve hydraulic pump featuring a maximum output pressure of 10 000 psi/690 bar. It is hand operated and is compatible with most single and double-acting hydraulic cylinders.

The single acting FAB820 complete pull tester has a 20t maximum pulling capacity, maximum pressure of 55 MPA and a ram area of 3 436 mm<sup>2</sup> while the FAB195 strand cropper, which can cut 13, 15 and 18 mm anchor strands, features a maximum pressure of 60 MPA and a design cutting force of 290 KN.

The company’s 15 kg FAB500 lightweight 20 t jack is suitable for tensioning 15 and 18 mm cable anchors and features front gripping, with 150 mm minimum strand length for gripping, as well as easy-to-change gripping wedges or jaws. The jack is powered by a double acting hydraulic pump.

The double-acting, 4-way valve FAB603 air hydraulic stressing pump operates with compressed air at a maximum output pressure of 10 000 psi



The FAB603 air hydraulic stressing pump.

(690 bar) and is compatible with most single and double-acting hydraulic cylinders while the hand operated heavy-duty, double-acting 4-way valve FAB470 hydraulic stressing pump with maximum output pressure of 10 000 psi (690 bar) provides high volume per stroke. It, too, is compatible with single and double acting hydraulic cylinders.

### Monitoring equipment & training

Fabchem Mining introduced the GDT100 Grout Detector, a handheld device used to detect and provide assurance that an anchor has been full-column grouted during and after installation of a cable anchor. The Grout Detector is able to detect the presence of the grout for up to two months after installation of a cable anchor. It uses up to three colour-coded proprietary Fabchem sensors, mounted into a cable anchor to detect if sufficient grout has been pumped to cover the full length of the cable anchor.

Fabchem Mining also has the equipment and knowledge to provide training in various areas, including cable anchor installation. ■



Mechanical anchors.

## Key takeaways

Fabchem Mining is a one-stop tailored support solution company to the mining and civil industries

The company offers a total support solution, from drilling the hole for the tendon, to installation, pre-stressing, grouting and post installation integrity testing

Fabchem is certified through the SABS to the Quality Management System ISO9001:2015

The company’s Grout Detector is used to ensure that an anchor is full-column grouted



Ian Bagshaw, territory manager for Sandvik Mining & Rock Solutions.

# Sandvik's Harare powerhouse keeps mining moving

With exciting prospects for new mines and brownfield projects in Zimbabwe, Sandvik Mining & Rock Solutions' Harare-based operation remains at full capacity and at the leading edge of industry innovation.

**W**e are looking forward to two new platinum operations taking shape, which could be producing within five years, as well as the expansion and digitalisation of existing operations," says Ian Bagshaw, territory manager for Sandvik Mining & Rock Solutions. "There will also be the rejuvenation of brownfield operations in surface and underground mines."

Strengthening its capacity to serve its market – which includes customers in Botswana and Mozambique – the company has upgraded the skills, tooling and equipment of its service centre and completed a state-of-the-art technology centre.

The service centre in Harare remanufactures all current models of Sandvik mobile equipment and also houses a repair and rebuild facility for all major components as well as a dedicated drifter repair and test centre.

Its world class Technology Centre works with customers to fully utilise the range of Sandvik digital tools to increase safety and productivity in mining operations.

"We are proud of our strong technical foundation,

with about 60% of our 420 plus workforce being engineers, artisans, auto-electricians and other technical specialists," says Bagshaw. "Investing in training our own people is a priority, and we are proud to note the considerable interest from women in Zimbabwe in pursuing technical careers with some 30% of our apprentices being female at any time."

Sandvik Mining & Rock Solutions' Zimbabwean operation supports the full range of Sandvik equipment in the country ranging from underground trucks and loaders to surface drills and crushing and screening equipment. Bagshaw explains that service and support is tailored to suit each customer's requirements and ranges from full maintenance contracts to field service callouts, both backed by a comprehensive parts stockholding, digital monitoring and ongoing training.

He highlights the value of the company's dedicated training department – delivering operator and technical training in-house and for customers. Gap analysis is also provided by the training team, helping mines to assess their skills base and provide



The Sandvik rebuild facility in Harare ensures support throughout equipment life cycles.





targeted training programmes for operators as well as technical and supervisory staff.

“We are also looking forward to mineral developments in Botswana, where activity on the Kalahari copper belt has created significant opportunities for the mining industry,” he says. “In the near future we will see copper and diamond operations going underground, which is an exciting prospect.”

Bagshaw notes that Sandvik Mining and Rock Solutions’ Harare facility has remained fully

operational through the Covid-19 pandemic, ensuring that mines could continue producing optimally as essential services even during the ‘lockdown’ months.

“We are staying abreast of the latest global sustainability trends and corporate mandates, having installed a 420-panel solar energy system to generate 100 kW of power to our facility,” he says. This supplies about 75% of requirements, and reduces the operation’s carbon footprint by over 400 tonnes of carbon dioxide emissions per year. ■

Above: The Technology Centre at the Sandvik Mining & Rock Solutions’ Harare operation.

Left: The drifter repair and test centre at the Sandvik Harare site.



**FABCHEM  
MINING**

## TOTAL SUPPORT SOLUTIONS

We Are a Leading Manufacturer and Supplier of Strata Control Products

### FAB500 LIGHTWEIGHT 25 TON FRONT GRIPPING TENSIONING JACK

The FAB500 is the lightest and most ergonomical front gripping jack in the market.

- Suitable for tensioning 15mm (25t) and 18mm (38t) cable anchors.
- Ergonomical plastic encased handles
- Weight only 15kg (16.3kg including standard pipe and safety sling).



### GDT 100 GROUT DETECTOR

The GDT100 (Grout Detector) is a handheld device used to detect and provide assurance that an anchor has been full column grouted during and after installation of a cable anchor.

The Grout Detector is able to detect the presence of the grout for up to two months after an installation of a cable anchor.

It uses up to three (3) colour coded proprietary Fabchem sensors, mounted into a cable anchor to detect if sufficient grout has been pumped to cover the full length of the cable anchor.



### OTHER PRODUCTS

Cable anchors, grouting cement, grouting equipment and tensioning equipment

SCAN TO DOWNLOAD OUR PRODUCT BROCHURE

+27 (0) 11 817 2290/5/6  
sales@fabchem.co.za  
Industrial Park, 58 Watt Road, New Era, Springs, South Africa

www.fabchem.co.za



# Why 2022 could be a watershed year for logistics in Africa

By Amadou Diallo, CEO of DHL Global Forwarding Middle East & Africa

Over the past two years, the logistics and supply chain industry has been subjected to the Covid-19 ‘stress test’. Grappling with the worst pandemic in modern history, border closures, and lockdowns, logistics heroes went above and beyond the call of duty to ensure critical shipments of personal protective equipment (PPE), medical supplies, food, and vaccines reached communities around the world.

**A**s we kick off 2022, the pandemic continues to impact the globe, with more countries implementing new rounds of regional lockdowns as new virus mutations are reported. Despite these challenges, DHL’s Global Connectedness Index found that trade in goods has surged to well above pre-pandemic levels, powerfully supporting the global recovery even as capacity challenges and trade tensions persist.

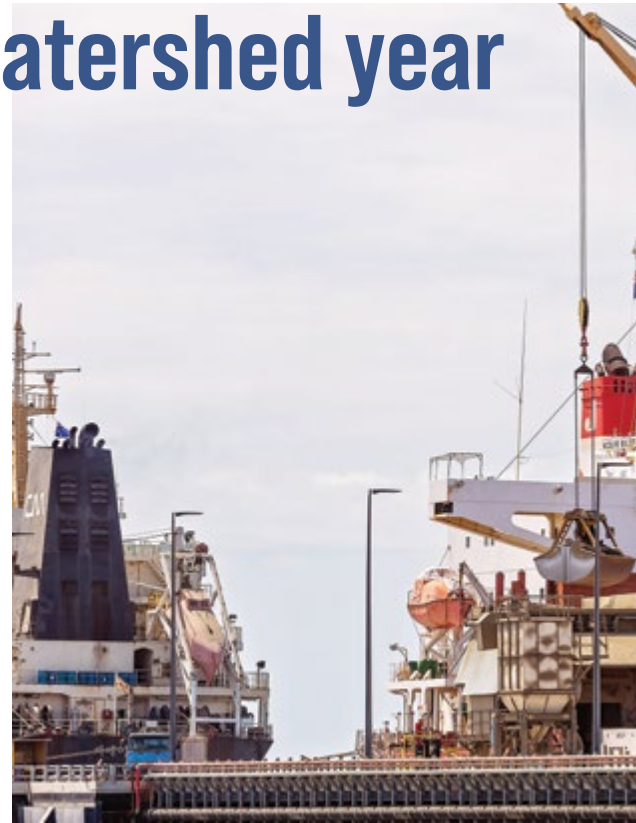
The pandemic also revealed longstanding vulnerabilities that demand attention as we enter 2022.

*In the first half of 2021, investments in autonomous trucking companies reached \$5.6-billion.*

## Supply chain sustainability reaches African shores

A key buzzword within our 2021 logistics and delivery trends predictions, sustainability will still feature heavily in 2022.

Consumers are increasingly expecting brands to be environmentally responsible – from their sustainable packaging to their emissions – and businesses are waking up to the financial benefits of reducing waste along their supply chains.



One of the biggest carbon-offenders along the e-commerce supply chain is transportation: according to Boston Consulting Group, transport-related activities account for 11% of global greenhouse gas emissions.

To counter this, the adoption of green vehicles is becoming more widespread, with several African governments and the private sector embracing e-mobility.

Kenya and Ethiopia have also expressed interest in incentivising electric vehicle (EV) uptake.

The increased use of electric vehicle solutions in Africa is a timely initiative to decarbonise transport and improve air quality in African cities. Private companies are also driving progress by introducing EV production targets, with logistics companies and ride-sharing services converting fleets to EVs.

Consequently, DHL aims to electrify 60% of its last-mile deliveries and have 80 000 e-vehicles on the road by 2030, as part of a group-wide target to reduce all logistics emissions to net-zero by 2050.

In August 2021, DHL made aviation history by ordering 12 fully electric Alice eCargo planes from aircraft manufacturer Eviation.

This year, DHL Global Forwarding started offering sustainable marine fuel for LCL and FCL shipments.

Be it sustainable aviation fuel (SAF) in air freight, Bio-LNG and electric



drives in road transport, or sustainable marine fuel (SMF) in ocean freight – the greater the demand, the greater the diversity of solutions and supply.

### Creating resilient supply chains in 2022

Global supply chains faced unprecedented pressures last year, grappling with a shortage of shipping containers, cargo space, workers, and raw materials.

Tightened border controls and global inflation, with backlogs and delays at key transit ports across the world, added to the challenges, which can be expected to continue in 2022.

As businesses increasingly pivot to e-commerce, they need agile and flexible supply chains to stay competitive and adapt to market disruptions in real-time.

In times of unpredictable demand, businesses need elastic logistics – that can quickly expand or shrink, enabled by artificial intelligence (AI) and analytics that can predict upcoming demand surges.

With social distancing in force, we expect increased adoption of AI in the warehouse to automate key picking, packing, and inventory processes, reduce turnaround times, move shipments faster, and allow e-commerce businesses to remove items from customers' visibility when stocks run too low.

Elastic logistics enables supply-led decisions, saving costs, reducing wastage, and ultimately, they could be the differentiator in a highly competitive e-commerce sector.

With digital services such as DHL's digital customer platform, myDHLi, e-commerce businesses can know where their shipments are and share the

status with colleagues or partners at every point in the transport chain.

This allows immediate action if needed and eases planning. Supply chains can thus be up and running even in times of crisis.

### Autonomous vehicles for the socio-economic development of Africa

Global driver shortages are expected to worsen in 2022, enabling the growth of the self-driving vehicle industry.

In the first half of 2021, investments in autonomous trucking companies reached \$5.6-billion. However, widespread adoption remains elusive in the mid-term future.

Some have identified opportunities to explore forklifts and swap bodies, while others have pursued last-mile delivery rovers.

Currently, the technology is not perfect, and almost all solutions require a human to be on standby for legal, safety, and operational reasons.

Currently, around 60% of the African continent's population lacks access to a supporting infrastructure needed to connect the continent's logistics framework.

However, the proven efficiency and sustainability of drone-based logistics networks in East Africa are making good ground in closing this gap to help foster Africa's socio-economic development.

### E-commerce – still booming

Over the past year, there's been a 40% year-on-year increase in overall app installs.

The recent boom in e-commerce is expected to continue at speed in 2022, with worldwide retail e-commerce sales forecast to hit \$5.4 trillion.

The e-commerce boom and rising customer expectations are also expected to lead to the growth of autonomous and automated robotic solutions in warehouses – saving businesses time and money.

In fact, the global autonomous warehouse robotics market is expected to almost double in size by 2025, reaching \$27.2 billion.

Automated storage and retrieval systems in warehouses help find, pick, and move inventory around more quickly, so e-commerce businesses can meet tight delivery deadlines for customers.

DHL has announced plans to take on 2 000 new warehouse robots this year – to cope with rising e-commerce demands and consistently optimise our supply chains.

They say change is the only constant.

As we look towards the future, multiple forces of change – including accelerated digitalisation and the Covid-19 pandemic – will continue to shape the logistics industry through 2022 and beyond. ■

---

*DHL aims to electrify 60% of its last-mile deliveries and have 80 000 e-vehicles on the road by 2030.*

---

*Global driver shortages are expected to worsen in 2022, enabling the growth of the self-driving vehicle industry.*



a Hyve event

9-12 May 2022 | Cape Town, South Africa

# Reconnect with the mining industry in-person

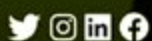
Mining Indaba will be back in  
Cape Town in 2022

Get ready to return to Cape Town as the industry unites to fuel transformations and collaborations. The must attend in-person event will bring together visionaries and innovators and connect you with your next business opportunity.

**Limited sponsorship and exhibition places remain**

Enquire today [www.miningindaba.com](http://www.miningindaba.com)

Get ahead of the game by registering your place **saving you up to £689 each** with the Early Bird rate

 #MiningIndaba2022

## Testing at Multotec improves manganese recoveries

Using its extensive in-house testing facility for material from a South African manganese producer, Multotec has defined a solution that will upgrade the quality of saleable concentrate while reducing the content of manganese in tailings.

According to Faan Borman, technology manager: research and development at Multotec's technology division, the customer had specific targets they wanted to reach. These targets aim to optimise revenue from recovered minerals and also improve environmental performance, as a level of more than 10% manganese in the tailings would require the dump to be classified as hazardous.

"The test work we conducted was to improve recovery of ultra-fine material from the thickener underflow," says Borman. "The financial benefit of better recoveries is to produce a richer concentrate, but it is also to reduce the metal content in tailings – so it is not regarded as hazardous waste."

Two sets of test work were designed and conducted. In the first set, stockpile material with a metal grade of 16% was tested using Multotec's UX7 ultra-fine spiral concentrator for the roughing and scavenging phases, while its SC21 five-turn spiral was used for the cleaning stage. This allowed the target saleable grade of 32% to be achieved, he says, but there was still some work to be done to reach the tailings target grade.

"This required some out-of-the-box thinking for the second set of tests, where we ran the material over the wet high-intensity magnetic separator (WHIMS) with a vertical ring," he says. "At the highest intensity, this was able to downgrade the spiral tailings material from 13 to 14% right down to 7% manganese – a significant improvement."

He highlighted that for process plants to

achieve the most viable solutions they must optimise the use of cost-effective equipment and strategies. Given the higher cost of applying WHIMS technology, the testing procedure using spirals was able to remove gangue minerals and reduce the volume of bulk material before being treated by the WHIMS.

"Another benefit of this process was that about a third of the material sent to the WHIMS in this process could be returned to the spiral circuit for further upgrade to meet specifications," he notes. "This considerably reduces tailings volumes, potentially cutting down the footprint of the tailings storage facility and extending its lifespan."

Bornman says that the cost of managing tailings facilities in a compliant manner, and the tightening regulations and policies on tailings dams, are encouraging a trend to re-process them. Technology improvements in metal recovery over the years now makes these re-treatment efforts commercially attractive.

"We have had considerable success



Manganese stockpile material was tested using the Multotec UX7 ultra-fine spiral concentrator for roughing and scavenging phases, and the Multotec SC21 five-turn spiral for the cleaning phase.

in applying the spirals together with the WHIMS, as it is key to ensuring sufficient bulk reduction up front," he says. "The process can be applied across a range of commodities, and we have also seen good results in minerals including chrome, iron ore, lithium and mineral sands." ■

## Kalahari Process unlocks full potential of iron ore tailings

Gravitas Minerals, a company focused on developing simple process technologies to increase recovery, has developed the Optima Concentrator gravity separator to recover iron ore from a – 3 mm feed. It uses hindered settling, fluidised bed and autogenous dense medium technology to separate iron ore from gangue based on density. With high throughput capacities of up to 40 t/h.m<sup>2</sup>, this is the ultimate low-footprint, water-only solution to fine iron ore recovery, the company said.

Gravitas Minerals has used the Optima Concentrator to develop its so-called Kalahari Process, which produces an iron ore product with a minimum grade of 63.0%

Fe from various iron ore feed sources. The process has seen great success to date by yielding recoveries of up to 80%. In addition, the process is ideally set up for the direct reuse of water by dry stacking of both the product and tailings streams.

"By utilising the Kalahari Process, iron ore producers can unlock the full potential of their mineral resource. In so doing, they can prolong the lifespan of their tailings' facilities by up to 50%, reduce the disposal of iron ore tailings and the associated environmental impact, increase their revenues and ultimately boost profits," says Gravitas Minerals director Tebogo Kale. ■



**KOMATSU**

**Built for the  
future of mining**

Wadeville, Johannesburg,  
South Africa  
27 11 872 4000

**P&H** **JOY** **METSO**  
www.mining.komatsu

## Used oil pioneer BME grows its green partnerships

Leading the field in the way it incorporates used oil into its emulsion explosives, Omnia Group company BME is extending the benefits of this growing sustainability initiative to mining customers and other approved partners.

Explosives manufacturer BME has become the leading consumer of used oil in the explosives sector. This harmful waste product is used as a fuel agent in the company's high-quality emulsions, ensuring that it is safely disposed of during the blasting process.

"Through our large collection network, we can ensure that used oil from customers and other sources does not find its way into valuable water resources or soil as a contaminant," said Ramesh Dhoorgapersadh,



BME's used oil truck collects used oil from customers.

BME's GM for safety, health, environment and quality (SHEQ). "This helps us fulfil the Omnia vision of protecting life, sustaining livelihoods and creating a better world."

BME consumes almost 25-million litres of used oil annually in South Africa alone and plans to increase its collection and processing capacity steadily in the years to come. It has been estimated that it takes only a litre of oil to contaminate a million litres of water, making the safe disposal of oil a strategic global imperative – especially for water-scarce countries. Dhoorgapersadh emphasised the alignment of BME's used oil initiative with the United Nation's Sustainable Development Goals (SDGs) – which focus on goals such as access to clean water, food security and eradicating pollution.

"It is important to appreciate the ecosystem impact of oil in the environment," he said. "Contamination not only poisons water but can affect food security by undermining the health of soil and agriculture."

BME was therefore reaching out to partner with mining and other players to promote the SDGs in pursuit of a sustainable future for the planet. He emphasised, however, that the collection, testing, treatment and utilisation of used oil is a complex and demanding process. It can-



Dirk Voogt - General Manager (Production & Logistics).

not be reliably conducted without a robust infrastructure and meticulous attention to quality in every step of the operation.

Dirk Voogt, BME's GM for production and logistics, explained that the company's oil collection network has evolved over many years – aligning each phase with its ISO 9000 quality certification. It is also registered as an approved collector and processor with the Recycling Oil Saves the Environment (ROSE) Foundation.

"Our extensive logistical arrangements include taking used oil from our mining customers, but also from our network of 11 approved suppliers – or bulking points," said Voogt. "The oil is processed and tested at our dedicated facility in Delmas, from where it can be channelled into our emulsion production." ■

## Metso Outotec introduces MDM900 mill discharge slurry pumps

Metso Outotec recently introduced the Metso Outotec MDM900 mill discharge

Metso's MDM900 mill discharge slurry pump



slurry pump – the latest addition to its flagship Mill Discharge (MD) Pump Series. The massive MDM900 is one of the world's largest mill discharge slurry pumps, designed for heavy-duty use in concentrator plants, where capacity and wear-resistance are of essence. The MDM900 is an all-metal, thick-walled, extra heavy-duty pump designed specifically for extremely arduous mill duty applications, the company said.

"Slurry handling is vital in maximising a minerals processing plant's productivity and efficiency. The advanced design of the MDM900 enables minimised slurry velocities in the pumps, thus reducing the rate of wear significantly. This translates to increased uptime and productivity for our customers. We are also proud to have implemented many environmentally sustainable design initiatives in the MDM900 pump, which is part of our Planet Positive offering, as are all our MD Series pumps.

As examples of its environmentally sustainable features, I would like to mention the reduced footprint of this massive pump, and its standard low-flow shaft seal to minimised the pump's freshwater requirement during operation," says Diwakar Aduri, product manager for MD Pumps at Metso Outotec.

Metso Outotec MD Series pumps offer outstanding uptime and sustained efficiencies. The MD pumps have been designed for efficient operation and long wear life to match the mill's uptime. Metso Outotec's MD Series pumps come in two tailored solutions, MDM and MDR. The MDM (Mill Discharge Metal) pumps are available in size ranges of 250-900, and the MDR (Mill Discharge Rubber) models come in size ranges of 250-700. Both pump types are suited for heavy-duty use in concentrator plants offering excellent resistance to abrasion and erosion. ■



## Rosond, Boart Longyear partner to uplift local businesses in the N Cape

Drilling technology solutions provider Rosond and multinational Boart Longyear have entered into a partnership to develop local businesses in the Northern Cape. “We have a responsibility towards Enterprise Supplier Development (ESD). We strive to translate new opportunities for Rosond into opportunities for the communities in which we are active, so that our growth in turn benefits these communities,” says Rosond MD Ricardo Ribeiro. Drilling-service provider Boart Longyear is currently supplying consumables for Rosond’s latest drilling programme at the Sishen and Kolomela Mines of Anglo American’s Kumba Iron Ore.

“ESD is a critical pillar of our preferential procurement, supplier diversity, supplier development and enterprise development policy, linked to our B-BBEE certification, whereby we seek to make a significant contribution to the transformation of South Africa,” adds Ribeiro. “While this contract is anticipated to continue for the next few

years, it is important that we play a major role in empowering small business and developing the local community to become an integral part of our own supply chain.”

He adds: “It was therefore logical for us to approach Boart Longyear to suggest an ESD company that we could both develop for the benefit of the local area and economy.” As a result, 36-year-old entrepreneur Clayton Van Der Ross’s Workshop Warehouse will service Rosond’s operations at Kumba Iron Ore with all its Boart Longyear requirements.

“It was important for us and Rosond to find a local company that not only ascribes to our own values and business ethics, but that fits in with Anglo American’s policies as well,” points out Andre van Heerden, GM: Sales, Africa at Boart Longyear. ■



An all-female Rosond drill rig crew at Kumba.



Rosond drilling programme at Kolomela and Sishen.

## HPE Africa expands with HX225SL tracked machines

HPE Africa has extended its range of Hyundai HX series crawler excavators, with the addition recently of HX225SL tracked machines, that are now available throughout Southern Africa.

The new eco-friendly HX300SL and HX220S crawler excavators, which were launched locally last year, are enhanced with the addition of the HX225SL series.

“What’s significant about the HX series is the high-performance, turbocharged engine that delivers fuel-efficient fast cycle speeds and impressive power. The durability of these machines enables high productivity, dependable performance and minimum downtime, even in arduous working con-

ditions,” states Ross Collard, managing director, HPE Africa, part of the Capital Equipment Group (CEG) of Invicta Holdings.

“Operators need the assurance that construction machines consistently deliver on fast, reliable operation, with high fuel-efficiency and low maintenance requirements. Equipment must also be able to safely handle challenging tasks in difficult terrain. It is critical in the selection of capital equipment, that operators focus on matching the correct size machine to exact project requirements.”

The HX series has advanced features for high work efficiency, including variable power control to ensure the highest performance in any operating environment and



The Hyundai HX300SL and HX220S crawler excavators have been enhanced with the addition of HX225SL tracked machines.

IPC (Intelligent Power Control) that allows the operator to easily select the correct mode on the monitor, to provide suitable power for each task. ■



# ALLIED CRANE HIRE

Setting the Standard!



0800-CRANES

info@alliedcranehire.co.za  
www.alliedcranehire.co.za

Branches covering Sub-Saharan Africa

## BMG develops high efficiency Synergy electric motors

BMG's team of electric motor designers and engineers have worked with global electric motor specialists, to develop high efficiency Synergy electric motors, that set the benchmark locally for arduous duty, high efficiency motors.

BMG's flagship Synergy range of asynchronous cast iron motors complies with the efficiency requirements as stipulated in SANS 60034-30:2009 and has SABS certification, which translates into production efficiency advantages for the local market.

Standard Synergy 3-phase asynchronous cast iron motors encompass the latest technology in electric motor design and are used in many industries, including mining and metallurgy, pumps and water treatment, petroleum, chemical, cement and sugar and paper milling.

BMG supplies a full range of Synergy IE3 motors ex stock and can also supply IE4

and IE5 units from the factory, to meet exact requirements on each mine.

"Almost two thirds of the power consumed by the mining sector is associated with electric motors, particularly those used for pumps, fans and conveyors. The majority of motors on the mines are not optimised for maximum efficiency," says Graeme Neilson, business unit manager, electric motors, BMG. "Apart from energy saving – a critical issue facing Southern Africa – Synergy motors have important advantages over other electric motors. These benefits include longer service life, suitability for voltage variation applications, reduced temperature rise and minimal maintenance requirements. Synergy motors also offer reduced



Synergy IE3 high efficiency electric motor 2021.

noise and vibration levels, higher reliability, greater flexibility and lower cost of operation."

Synergy IE3 motors incorporate high level specifications and features, including an IP66 rating for protection against the ingress of dust and water and an oversized terminal box with a removable gland plate, for easy replacement of the cables. Class H insulation, with a Class B (80°C) temperature rise, means the insulation can safely withstand heat that is higher than the motor's operating temperature at full load. Motors from frame size 80 to 132, have sealed bearings and all motors 160 frame and above have re-greaseable bearings. The standard lubrication nipples are manufactured from brass or stainless-steel material and are suitable for all environments. ■



Synergy high efficiency electric motors at a coal mine installation.



BMG's flagship Synergy range of asynchronous cast iron motors complies with the efficiency requirements.

## Index to advertisers

AECI Mining	OBC
Air Liquide	19
Allied Crane Hire	39
Babcock Equipment	OFC
Bosch Diesel	23
FabChem Mining	33
ifm	11
Komatsu Mining	37
Maelgwyn Mineral Services Africa	9
Maptek	IFC
Mining Indaba	36
Sandvik Mining and Rock Solutions	29
Sasol	7
Shell	IBC
Zest WEG Group	3



**SHELL  
LUBRICANT SOLUTIONS**

**UNLOCK YOUR  
FULL POTENTIAL**

Introducing our brand new range of products, **Shell Coolant**, **Shell Brake & Clutch Fluid DOT 4** and **AdBlue from Shell**, to help you maintain your vehicle all year round.

Contact our experts and put your potential in motion.  
Tel: 011 996 7444 Email: [shelltechnical-za@shell.com](mailto:shelltechnical-za@shell.com)



# YOUR EXTREME BLASTING CONDITIONS. OUR EMULSION.

POWERGEL X<sup>2</sup>

The logo features the word 'POWERGEL' in a bold, yellow, sans-serif font. To its right, a large, stylized 'X' is rendered in a glowing orange-red color with a cracked, molten appearance. A superscript '2' is positioned to the right of the 'X'. The entire graphic is set against a dark, textured background of cracked rock with glowing red veins.

A significant new development in AECI Mining Explosives' product offering is the development of its Powergel X<sup>2</sup> range, designed for surface mining applications where extreme blasting conditions such as hot blast holes and reactive ground, or a combination of both, exist.

*\*Only available in certain regions.*

AECI<sup>®</sup>  
MINING EXPLOSIVES